THE REPORT

OF THE

PRESIDENT

OF

QUEEN'S COLLEGE, CORK,

FOR

THE ACADEMIC SESSION 1873-4;

WITH APPENDICES.

Presented to both Houses of Parliament by Command of Her Majesty.

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THE REPORT

OF THE

PRESIDENT OF QUEEN'S COLLEGE, CORK,

FOR

THE ACADEMIC SESSION 1873-4.

TO THE QUEEN'S MOST EXCELLENT MAJESTY.

MAY IT PLEASE YOUR MAJESTY—

The first President of Queen's College, Cork, Sir Robert Kane, LL.D., having resigned in the month of August, 1873, Your Majesty was graciously pleased to appoint me as his successor on the 27th of September following. I was thus enabled to enter upon my duties at the commencement of the Academic Session, 1873-74, and have now the honour to submit, as the College Statutes direct me to do, the following Report of the Proceedings and State of the College for that Session.

1. GENERAL MATRICULATION EXAMINATION.

The General Matriculation or Examination for Entrance was held on Tuesday, the 21st of October, and following days. The subjects of examination, prescribed by the Council of the College, and printed in the College Calendar, will be found in Appendix A. No. 1, p. 19, annexed to this Report. Of the Candidates who presented themselves for examination 58 passed; of these 51 subsequently attended lectures, and 7 from various causes did not do so.

Besides the 58 who entered the College as Matriculated Students 14 Students were admitted as Non-Matriculated Students, making together 72 new Students.

2. TOTAL NUMBER OF STUDENTS.

The total number of Matriculated Students registered for the Session was 228, and the total number of Non-Matriculated Students 22, or together 250.

3. CLASSIFICATION OF STUDENTS ACCORDING TO ACADEMIC STANDING AND TO FACULTIES.

The following table shows the classification of the Matriculated Students according to their academic standing.

Matriculated Students attending the Course of the	First Year,	77
	Second "	68
	Third "	52
	Fourth "	31
	Total,	228
Non-Matriculated Students not classified,		22
Total,		250

The distribution of the Students attending the College during the past Session among the several Faculties is shown in the following table:—

	Matriculated Students.	Non-Matriculated Students	Total.
Faculty of Arts, . . .	58	6	64
„ Law, . . .	7	–	7
„ Medicine, . . .	154	16	170
School of Engineering, . .	19	–	19
Total, ...	238	22	260

The total number of Matriculated Students given in the foregoing table exceeds that previously given by 10. This difference is accounted for by 10 Students having entered for and attended lectures in two Faculties.

The working of the College can be better judged, however, from the following table in which the Matriculated Students in each Faculty are classified according to their academic standing:—

	Number of Students attending the course of the				
	First Year.	Second Year.	Third Year.	Fourth Year.	Total.
Faculty of Arts, . .	24	15	12	7	58
„ Law, . .	2	2	1	2	7
„ Medicine, .	45	44	41	24	154
School of Engineering, .	8	8	3	–	19
Gross Total, . .	79	69	57	33	238
Number of Students attending Lectures of another Year also,	2	1	5	2	Deduct 10
			Total, ...		228

4. Comparison of the Number of Students attending the College during the past Session with the number in the Sessions 1870–71, 1871–72, and 1872–73 respectively.

In the following table the number of Students classified according to their academic standing is compared with the number in each of the three preceding Sessions respectively, classified in the same way:—

Matriculated Students attending the course of the	Session of			
	1870–71.	1871–72.	1872–73.	1873–74.
First Year, ...	89	90	106	77
Second „	57	47	61	68
Third „	39	52	36	52
Fourth „	35	27	26	31
Special Courses, ...	5	14	3	–
Total Number of Matriculated Students, ...	225	230	232	228
Non-Matriculated Students, .	25	28	20	22
Total Number of Students,	250	253	252	250

From this table it will be seen that the number of Students attending the College has been about the same during each of the past four Sessions.

If we compare the number of Students in the several Faculties during the same four Sessions it will be found that, although the number of Law and Engineering Students—two classes of Professional Students very liable to fluctuate in numbers—was less in the past Session than in the Session of 1872–73, the number of Students in the Faculty of Arts in the Session of 1873–74, was notably greater than in any of the three preceding Sessions. The following table gives the number of Students classified according to Faculties for each of the last four Sessions:—

—	Session 1870–71.			Session 1871–72.			Session 1872–73.			Session 1873–74.		
	Matriculated Students.	Non-Matriculated Students.	Total.	Matriculated Students.	Non-Matriculated Students.	Total.	Matriculated Students.	Non-Matriculated Students.	Total.	Matriculated Students.	Non-Matriculated Students.	Total.
Faculty of Arts, .	50	–	50	53	3	56	47	2	49	58	6	64
" Law, .	8	3	11	11	1	12	12	–	12	7	–	7
" Medicine,	145	22	167	154	19	173	156	18	174	154	16	170
School of Engineering, . .	30	–	30	25	–	25	22	–	22	19	–	19
Gross Total, .	233	25	258	243	23	266	237	20	257	238	22	260
Deduct Number of Students attending Lectures in two Faculties, .	8	–	8	13	–	–	5	–	5	10	–	10
Total, . .	225	–	250	230	–	253	232	–	252	228	–	250

5. Ages of Students.

In the following table the Matriculated Students who entered the College at the commencement of last Session are classified according to their age.

Age in Years.	No. of Student	Age in Years.	No. of Students.
14,	2	20,	3
15,	7	21 and upwards,	12
16,	7	Unknown,	1
17,	8		
18,	8	Total,	58
19,	10		

In the following table all the Matriculated Students in the College during last Session are classified according to age and academic standing:—

Age in Years.	Students attending the course of the				
	First Year.	Second Year.	Third Year.	Fourth Year.	Total.
14,	2	1	–	–	3
15,	7	1	1	–	9
16,	10	3	–	–	13
17,	11	11	2	–	24
18,	13	18	7	–	38
19,	14	7	9	4	34
20,	4	6	8	5	23
21 and upwards,	14	21	25	22	82
Unknown,	2	–	–	–	2
Total,	77	68	52	31	228

Of the new Students 70·6 per cent. were, therefore, known to be 17 years of age and upwards, and 27·5 per cent. under 17 years of age: while 88 per cent. of all the Matriculated Students of the Session, 1873–74, were known to be 17 years of age and upwards.

6. SCHOLARSHIPS, EXHIBITIONS, AND PRIZES AT ENTRANCE.

The Examinations for Scholarships were held on Thursday, 23rd of October, 1873, and on the other days given in the table in the Appendix (A., No. I., p. 23). The subjects of examination, prescribed by the Council, and published in the College Calendar, as well as the conditions under which the Scholarships are held will also be found in the Appendix (A., No. I., p. 22; No. II., p. 33, &c.; No. III., p. 38; No. IV., p. 42; and No. V., p. 46). These examinations were conducted chiefly by printed papers, copies of which will be found in Appendix E. Of the 46 Junior Scholarships at the disposal of the Council 41 were awarded; of the 8 Senior Scholarships 7 were awarded. The following table shows the distribution of those Scholarships according to Faculties.

Faculties.	Total No. of Scholarships.	No. of Scholarships awarded.
Faculty of Arts—		
Junior Scholarships, ...	30	28
Senior "	7	6
Faculty of Law—		
Junior Scholarships, ...	3	1
Senior "	1	1
Faculty of Medicine, ...	8	8
School of Engineering, ...	5	4
Total, ...	54	48

Fourteen exhibitions—one in ancient classics, two in modern languages, and eleven in the subjects of the Medical Scholarships were also awarded at the Scholarship Examinations to unsuccessful Candidates for Scholarships whose answering was deemed worthy of special Prizes.

The names of the Scholars and Exhibitioners are given in Appendix B., No. VII., p. 48.

7. LECTURES.

A list of the subjects in which instruction is given in the college, the total number of students who attended classes in those subjects, and the number of lectures given to them by each Professor will be found in Appendix B. No. IX., p. 51. Under the head of each faculty, detailed information as to the courses of studies, outlines of the lectures given by each Professor, &c., are also given in Appendix A. (Nos. II., III., IV., and V., pp. 28, 38, 41, and 45). Each Professor has also furnished a Special Report of his work for the Session. These Reports form Appendix C., No. X., and will be found at p. 52.

8. SESSIONAL EXAMINATIONS AND PRIZES.

After each Course of Lectures an Examination is held, and prizes are awarded by the Council to the best answerers, specially recommended by the Professors.

The Examinations are conducted by printed papers, copies of which are given in Appendix E. No. XIV., p. 65.

The names of the Students to whom Prizes were awarded at the last Sessional Examinations are given in Appendix B., No. VIII., p. 49.

Students in the Faculties of Arts and Law and in the School of Engineering of less than three years' standing are bound to pass the Sessional Examinations of their year, otherwise they cannot be promoted in academic standing, and must consequently attend the same classes the following Session.

Medical Students are not bound to attend Sessional Examinations, and do not require academic promotion.

A large number of Medical Students did, however, voluntarily attend the Sessional Examinations for Prizes in Anatomy, and in most of the other Medical subjects held in the month of May. This shows that the value of such Examinations is beginning to be recognised by Students.

The following Table contains the results of the Sessional Examinations as regards the promotion of Students in the Faculties of Arts and Law, and in the School of Engineering for the Session 1873–74:—

	Number of Fourth Year's Students not requiring Promotion.	Number of Students who did not attend Lectures.	Number of Students who attended Lectures.		
			Promoted.	Not Promoted.	Total.
Faculty of Arts, .	6	7	36	9	58
,, Law, .	–	2	2	3	7
School of Engineering,	3	–	11	5	19
Total, . .	9	9	49	17	84
Faculty of Medicine—Students of this Faculty do not require Academic Promotion, ...					154
					238
Deduct number of Students attending Lectures in two Faculties,					10
Total number of Matriculated Students for the Session of 1873-74,					228

9. UNIVERSITY EXAMINATIONS FOR DEGREES, DIPLOMAS AND PRIZES.

The following Table gives the number of Students of Queen's College, Cork, who passed the Examinations of their Standing and Faculty, and obtained Degrees, &c., at the Examinations of the Queen's University held in the months of June and October, 1873, and January, 1874:—

	M.A.	B.A.	First Examination.	
Faculty of Arts, . .	4	8	10	
	LL.B.			
Faculty of Law, . .	1			
	M.D.	M.Ch.	Diploma of Midwifery.	First Examination
Faculty of Medicine, .	19	17	10	25
	B.E.	First Examination.		
School of Engineering, .	2	3		

Of the Masters in Arts, one obtained first class, two second class, and one third class honors.

Of the Bachelors in Arts, one obtained first class, and four third class honors, and three were unclassed.

Of those who passed their First Examination in Arts, one obtained second, and one third class honors, and eight were unclassed.

The Degree of Bachelor in Laws was of the First Class.

Of the Doctors in Medicine, one obtained first class honors, and eighteen were unclassed. All who passed the first Examination in Medicine were unclassed. A considerable number of the Students in Medicine prefer going in for their Examinations in the month of June, and as the Examinations held at that time are Pass Examinations, many Students who would otherwise obtain honors at the October Examinations consequently appear in the list unclassed.

Of the Students who passed the first Examination in Engineering, one obtained first class, and one third class honors.

Of the Prizes founded by public subscription in the Queen's University, that for composition open to the competition of Graduates and Under-graduates, was awarded to Michael Joseph Malone, M.D., of Queen's College, Cork, and that for composition limited to the competition of Under-graduates in Medicine to Daniel Wilson of Queen's College, Cork.

10. COMPETITIVE EXAMINATIONS.

At Examinations held since the last Session, 1872–73, the following Students of Queen's College, Cork, obtained appointments in the public service, or other distinctions by Competitive Examination:—

Edward F. Roche, ...	14th	place	Civil Service of India.
John L. Corbett, M.D., . . .	2nd	,,	Indian Medical Service.
Thomas J. Gallway, M.D., . .	2nd	,,	Army Medical Service.
Benjamin Jagoe, B.A., M.D., . .	6th	,,	Ditto.
Charles C. Smyth, ...	7th	,,	Ditto.
Nathaniel M'Creery, ...	13th	,,	Ditto.
James Ring, M.D., ...			Ditto.
John Martin, ...			Ditto.
William Pearson, M.D., . . .			Navy Medical Service.
Matthew J. Bourke, M.A., . .	An Exhibition of twenty guineas a year for three years for his answering on being called to the Bar.		
Timothy Neville, B.A., . . .	A Silver Medal on being admitted a Solicitor.		

11. CONDUCT AND DISCIPLINE OF THE STUDENTS.

Very few fines were imposed on Students during the Session 1873–74 for slight breaches of discipline in the lecture-room, and no case of misconduct or breach of discipline occurred which called for the notice of the Council. As the Students do not reside in the College or in licensed halls, I can only report officially of their conduct while in the College; there during the past Session it has been invariably good. From careful inquiries which I have made, and after having devoted much attention to the matter, I believe that I am justified in saying that outside the College the conduct of those Students who did not reside with their parents or guardians was also good.

The Vice-President's report on discipline will be found in Appendix C., No. X., p. 53.

12. RELIGIOUS DENOMINATIONS OF STUDENTS.

In the following table the new Students of the Session of 1873–74 are classified according to their religious denomination:—

	Matriculated Students.	New Non-Matriculated Students.	Total.
Roman Catholics, . .	33	9	42
Episcopal Protestants, . .	24	3	27
Presbyterians, . . .	–	2	2
Other Denominations, . .	1	–	1
	58	14	72

In the following table all the Students on the books of the College for the Session of 1873–74 are classified according to their religious denomination:—

—	Roman Catholics.			Episcopal. Protestants.			Presbyterians.			Other Denominations.	Total.
	Matr.	Non-Matr.	Total.	Matr.	Non-Matr.	Total.	Matr.	Non-Matr.	Total.	Matr.	
Faculty of Arts, . .	23	1	24	31	4	35	3	1	4	1	64
„ Law, . .	4	–	4	1	–	1	2	–	2	–	7
„ Medicine, .	82	11	93	66	4	70	5	1	6	1	170
School of Engineering, .	7	–	7	12	–	12	–	–	–	–	19
Gross Total, . .	116	12	128	110	8	118	10	2	12	2	260
Deduct Students attending two Faculties, .	5	–	5	2	–	2	3	–	3	–	10
Total, . . .	111	12	123	108	8	116	7	2	9	2	250

In the following tables the Students are classified not only according to Faculties, but also according to academic standing:—

FIRST YEAR.

	Roman Catholics.	Episcopal. Protestants.	Presbyterians.	Other Denominations.	Total.
Faculty of Arts, . .	8	15	–	1	24
„ Law, . .	1	–	1		3
„ Medicine, .	30	13	1	–	44
School of Engineering, .	2	6	–	–	8
	41	34	2	2	79
Deduct number attending two Faculties, .	1	–	1	–	2
Total, .	40	34	1	2	77

SECOND YEAR.

	Roman Catholics.	Episcopal. Protestants.	Presbyterians.	Other Denominations.	Total.
Faculty of Arts, . .	5	10	–	–	15
„ Law, . .	1	1	–	–	2
„ Medicine, .	24	18	1	1	44
School of Engineering, .	4	4	–	–	8
	34	33	1	1	69
Deduct number of Students attending two Faculties, . .	1	–	–	–	1
Total number, .	33	33	1	1	68

THIRD YEAR.

	Roman Catholics.	Episcopal. Protestants.	Presbyterians.	Total.
Faculty of Arts, ...	5	4	2	11
,, Law, ...	–	–	1	1
,, Medicine, . . .	22	17	2	41
School of Engineering, . .	1	2	–	3
	28	23	5	56
Deduct number of Students attending two Faculties, .	2	1	1	4
Total, ...	26	22	4	52

FOURTH YEAR.

	Roman Catholics.	Episcopal. Protestants.	Presbyterians.	Total.
Faculty of Arts, ...	4	2	1	7
,, Law, ...	2	–	–	2
,, Medicine, . . .	5	18	1	24
School of Engineering, . .	–	–	–	–
	11	20	2	33
Deduct number of Students attending two Faculties, .	–	1	1	2
Total, ...	11	19	1	31

In the following table the religious denomination of the Scholars and Exhibitioners is given according to their Faculties and academic standing:—

	Roman Catholics.	Episcopal. Protestants.	Presbyterians.	Other Denominations.	Total.
Faculty of Arts—					
First Year {Literary Scholarships,	2	3	–	–	5
First Year {Science ,,	1	4	–	–	5
Second and Third Year {Literary ,,	5	4	–	–	9
Second and Third Year {Science ,,	3	4	2	–	9
Senior Scholarships, . . .	3	1	2	–	6
	14	16	4	–	34
Faculty of Law—					
Third Year Scholarships, . .	–	–	1	–	1
Senior ,, . .	1	–	–	–	1
	1	–	1	–	2
Faculty of Medicine—					
First Year Scholarships, . .	2	–	–	–	2
Second Year ,, . .	1	–	–	1	2
Third Year ,, . .	1	1	–	–	2
Fourth Year ,, . .	1	1	–	–	2
	5	2	–	1	8
School of Engineering, . . .	1	3	–	–	4
Total Scholarships, . .	21	21	5	1	48
Exhibitions, ...	7	6	1	–	14
Total, ...	28	27	6	1	62

The following table gives the number of new Students for each of the last four Sessions, classified according to religious denomination:—

Comparative TABLE of the number of each Religious Denomination who entered the College during each of the last four Sessions.

—	1870-71.			1871-72.			1872-73.			1873-74.		
	Matr.	Non-Matr.	Total.	Matr.	Non-Matr	Total.	Matr.	Non-Matr.	Total.	Matr.	Non-Matr.	Total.
Roman Catholics,	23	2	25	35	4	39	31	7	38	33	9	42
Episcopal. Protestants, . . .	37	10	47	37	8	45	42	8	50	24	3	27
Presbyterians, .	8	–	3	4	–	4	–	–	–	–	2	2
Other Denominations, . . .	1	1	2	1	1	2	2	–	2	1	–	1
Unknown, . .	–	–	–	–	–	–	2	–	2	–	–	–
Total, . .	64	18	77	77	18	90	77	15	92	58	14	72

If we compare the total number of Students matriculated and non-matriculated, we get the results in the following table:—

TABLE showing the relative numbers of Students of the several Denominations attending the College during the Sessions 1870–71, 1871–72, 1872–73, and 1873–74.

—	1870-71.			1871-72.			1872-73.			1873-74.		
	Matr.	Non-Matr.	Total.	Matr.	Non-Matr.	Total.	Matr.	Non-Matr.	Total.	Matr.	Non-Matr.	Total.
Roman Catholics,	79	7	86	98	8	104	98	0	107	111	12	123
Episcopal. Protestants, . . .	125	17	142	118	13	131	119	11	130	108	8	116
Presbyterians, .	12	–	12	10	–	10	8	–	8	7	2	9
Other Denominations, . . .	9	1	10	6	2	8	5	–	5	2	–	2
Unknown, . .	–	–	–	–	–	–	2	–	2	–	–	–
Total, . .	225	25	250	230	23	253	232	20	252	228	22	250

If we include Protestants of all denominations under one head the relative proportion of Roman Catholics and Protestants given in the foregoing table, may be expressed in per-centages as follows:—

TABLE of the per-centage of Roman Catholics and Protestants of all Denominations attending the College during the Sessions 1870–71, 1871–72, 1872–73, and 1873–74.

	Roman Catholics.	Protestants of all Denominations.
Session 1870–71, ...	34·40	65·60
„ 1871–72, ...	41·11	58·89
„ 1872-73, ...	42·46	57·54
„ 1873–74, ...	49·20	50·80

13. RESIDENCES.

There are no licensed Boarding Houses in connexion with the College, and no application for a licence was made to me during the Session.

The Reports of three Deans of Residences are given in Appendix D.

14. RECEIPTS AND EXPENDITURE OF THE COLLEGE.

A copy of the Annual Balance Sheet furnished by the Bursar to the Audit Office, and a statement of the manner in which the Annual Parliamentary Grant, and the College Fees and Fines for the year ending the 31st March, 1874, have been expended, are annexed as Appendix C. No. XII.

I beg leave to represent that the Annual Parliamentary Grant for the College is insufficient to maintain it in an efficient state.

As the balance of £1,372 14s. 11d. to the credit of the College on the 31st of March, may at first sight seem to contradict what I have just stated as to the insufficiency of the Annual Grant, it is necessary to observe that the balance in question is made up of the unexpended balances of several years of the endowment from the Consolidated Fund. Under the Colleges' Act and the Statutes, the endowment is confined to the payment of salaries, wages of servants, and scholarships. Any balances which may arise from salaries caused by vacancies, and from lapsed or unappropriated scholarships, can be applied by the Council only to found additional scholarships, and to constitute exhibitious or prizes, or, having first obtained the sanction of His Excellency the Lord Lieutenant, to some other purposes, *but not to the maintenance of the College*, for which the Parliamentary Grant is voted.

Some doubt having existed as to whether unappropriated balances from the Consolidated Fund were the property of the College, or should be paid back to the Treasury, a case was submitted to Your Majesty's Law Officers in Ireland, who reported that such unexpended balances belonged to the College. Since then, the Lords Commissioners of Your Majesty's Treasury have signified their intention of not claiming such balances. Under these circumstances, it was thought desirable not to allow in future so large a sum to remain on current account in the bank. The Council accordingly resolved to invest in Government Securities such portion of the balance in bank as could be spared. The sanction of His Grace the Lord Lieutenant having been obtained, a sum of £1,000 has been invested in New Three per Cent. Stock in the name of the President and Professors of Queen's College, Cork.

By this measure, the funds of the College are made more secure, while the money, instead of lying unproductive in the bank, will add to the income of the College, available for scholarships, exhibitions, and prizes, or help to create an endowment to provide some very pressing wants.

15. LIBRARY.

The special Report of the Librarian will be found in Appendix C. No. XI.

Since the appropriation in the year 1863 of part of the Grant annually voted by Parliament for the maintenance of the College, to increase the salaries of the professors, the Library has suffered from the want of funds to purchase books, especially scientific periodicals and expensive standard works, which ought to be in every Collegiate Library, but which are absolutely indispensable in a place like Cork, where a scientific or literary inquirer has no other library to refer to.

Under the head of Collegiate Buildings, I shall have some further remarks to make about the Library.

16. PHYSICAL AND OTHER CABINETS.

The instruments in the Physical Cabinet are in excellent order; but many new instruments are required which the want of funds has hitherto prevented the Professor of Natural Philosophy from obtaining. The Professor of Natural Philosophy is also desirous of having a small Physical Laboratory where Students might learn the use of instruments and the methods of rèsearch; to do, in other words, for physics what the Chemical Laboratory does for chemistry. A Physiological Laboratory, provided with the necessary instruments for Biological researches of all kinds, should also be provided. The value of practically teaching the experimental sciences is now so fully recognised that I need not dwell upon the advantage of providing the College with every means of teaching science now considered indispensable.

The Cabinet of the Professor of Materia Medica and Toxicology, requires considerable additions. He very properly thinks that he ought to be provided with better means than he has for teaching his subjects practically.

17. MUSEUMS.

The collections in the Natural History Museum, in the Anatomical and Pathological Museums, and in the Ethnological and Archæological Museums, would require considerable extension, but owing to want of funds, scarcely any additions have been made to any of the collections during the past year. There is also great need of a Curator, who would be able to devote his time, under the direction of the Professors of those branches of science concerned with the several collections, to labelling and arranging the specimens, and increasing the collections generally.

Under the head of Collegiate Buildings, I shall have something further to say on the subject of Museums.

18. COLLEGIATE BUILDINGS.

The present Museum of Anatomy and Pathology is wholly unfitted for the purpose; indeed the Natural History Museums are not much better; and there is no separate room for the Archæological Collections, which are kept in the lecture rooms. I beg to represent to Your Majesty that a new Museum Building should be erected in which all our Collections might be brought together, and ample provision made for future development. The rooms now used as Museums could be put to other purposes, so as to allow of some very pressing wants being supplied, and some inconvenient defects in our arrangements remedied—such as providing a much wanted reading-room for Students, enlarging and improving the Chemical Laboratory, enlarging the Anatomical Department, providing rooms for the Professor of Materia Medica, and a hall for Medical Students.

If we had such a reading-room as that suggested it might be possible to extend the advantages of the College Library to many who at present are debarred from the study of literature and science owing to the absence of a public library in Cork.

The new Museum might with advantage be open to the public at times, and under conditions which would not interfere with its primary object. This would help to create and diffuse a taste for science, and thus indirectly benefit the art and industry of Cork.

19. College Grounds and Botanic Garden.

I beg leave to represent the defective and very objectionable character of the modes of access to the College, and the necessity of providing a direct entrance nearer to the city, and also to earnestly recommend the purchase of some adjacent land, so as to save the College from being shut in between the County Gaol and a number of lanes of small houses, of which there is immediate danger.

My predecessor, Sir Robert Kane, has several times represented the necessity of providing a glass-house for tropical and sub-tropical plants from which the Professor of Natural History might procure illustrations for his lectures, and which would furnish the Students with typical examples of the flora of warm regions. This want is urgent.

20. College Fellowships.

The foundation of a few Fellowships, including one or more Travelling Fellowships, tenable for a limited number of years, would benefit this College in many ways. It would encourage the study of the higher branches of knowledge, assist in supplying a pressing want—properly qualified teachers for Intermediate Schools and Colleges, and afford a most efficacious means of elevating the standard of acquirements in the College generally.

21. Salaries of Professors, &c.

In conclusion, I beg to represent to Your Majesty that the salaries of the Professors, Officers, and Servants of this College, originally fixed on too low a scale, are now wholly insufficient, and in the interest of the institution, as well as of Education generally, should be increased.

WILLIAM K. SULLIVAN,
President of Queen's College, Cork.

Queen's College, Cork.
5th July, 1874.

APPENDIX.

APPENDIX A.

Appendix A.

No. I.

General Regulations of College, &c.

No. I.

ESTABLISHMENT of the COLLEGE and UNIVERSITY. COLLEGIATE STAFF. GENERAL REGULATIONS of the COLLEGE. STUDENTS: MATRICULATION, RESIDENCES, FEES, LECTURE HOURS, SCHOLARSHIPS, EXHIBITIONS, PRIZES, DEGREES.

QUEEN'S UNIVERSITY IN IRELAND—QUEEN'S COLLEGE, CORK.

ESTABLISHMENT OF THE COLLEGE AND UNIVERSITY.

The COLLEGE is a Corporation under the name and style of "THE PRESIDENT and PROFESSORS of QUEEN'S COLLEGE, CORK." It was founded under the provisions of the Act 8 & 9 Victoria, cap. 66, intituled "An Act to enable Her Majesty to endow new Colleges for the Advancement of Learning in Ireland." Under the powers given by this Act the three colleges of Belfast, Cork, and Galway were incorporated on the 30th day of December, 1845. The Statutes were drawn up, and the system of education to be pursued in them arranged by a Board called the "Board of Queen's Colleges," consisting of the Presidents and Vice-Presidents of the three colleges. The Professors were appointed on the 4th of August, 1849, and on the 30th of October of the same year the Colleges were opened for the reception of students. Letters Patent constituting the Statutes were issued on the 11th of December, 1849, and a further Charter was issued in the year 1863.

The UNIVERSITY was founded in 1850 under the name and style of the "QUEEN'S UNIVERSITY IN IRELAND," and its charter provides that the senate should have power to confer upon the students of the Queen's Colleges of Belfast, Cork, and Galway such degrees and distinctions in the Faculties of Arts, Law, and Physic, as are granted and conferred in other Colleges and Universities of Great Britain and Ireland. The Charter further ordains that any of the Students of the three Queen's Colleges who shall have obtained such Degrees in any of the several Faculties of Arts, Medicine, and Law as shall be conferred by the Chancellor and Senate of the Queen's University, shall be fully possessed of all such rights, privileges, and immunities, as belong to similar Degrees granted by other Universities or Colleges, and shall be entitled to whatever rank and precedence is derived from similar Degrees granted by other Universities.

The Professors of the three Queen's Colleges are entitled to style themselves "Professors of the Queen's University."

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No. I.
General Regulations of College, &c.

COLLEGIATE STAFF.

President—WILLIAM K. SULLIVAN, PH.D., M.R.I.A.

Vice-President—JOHN RYALL, LL.D.

Professors.

The Greek Language,	JOHN RYALL, LL.B.
The Latin Language,	BUNNELL LEWIS, M.A., F.S.A.
Mathematics,	CHARLES NIVEN, M.A., FELLOW OF TRIN. COLL., CAMB.
Natural Philosophy,	JOHN ENGLAND, M.A.
History and English Literature,	GEORGE F. ARMSTRONG, M.A.
Logic and Metaphysics,	GEORGE SIDNEY REAN, M.A.
Chemistry,	MAXWELL SIMPSON, B.A., M.B., F.R.S.
Natural History,	JOSEPH REAY GREENE, B.A., M.D., M.R.I.A.
Geology and Mineralogy,	ROBERT HARKNESS, F.R.SS.L. & E., F.G.S.
Modern Languages,	RAYMOND DE VERICOUR, M.A.
Jurisprudence & Political Economy,	RICHARD HORNER MILLS, M.A.
English Law,	MARK S. O'SHAUGHNESSY, M.R.I.A., F.R.S.L.
Anatomy and Physiology,	J. HENRY CORBETT, M.B., L.R.C.S.I.
Medicine,	DENIS C. O'CONNOR, B.A., M.D.
Surgery,	WM.K. TANNER, M.D., F. & L.R.C.S.I.
Materia Medica,	PURCELL O'LEARY, B. ES. L., M.A., M.B., F.R.S.
Midwifery,	JOSHUA R. HARVEY, B.A., M.B.
Medical Jurisprudence,	MARK O'SHAUGHNESSY, M.R.I.A., F.R.S.L. PURCELL O'LEARY, B. ES. L., M.A., M.B., F.R.S.
Engineering,	ALEXANDER JACK, M.A.

Council of the College.

The PRESIDENT.
,, VICE-PRESIDENT.
Professor NIVEN.
,, ARMSTRONG.
,, TANNER.
,, HARVEY.
,, JACK.
,, SIMPSON.

Officers.

Registrar,	ROBERT JOHN KENNY, Esq.
Bursar,	JOHN ENGLAND, M.A.
Librarian,	MATTHIAS O'KEEFFE, M.A., M.D.

GENERAL REGULATIONS.

THE COLLEGE SESSION, 1873–74.—The *First Term* commenced on the 21st of October, 1873, and ended on the 20th of December.

The *Second Term* commenced on the 5th of January, 1874, and ended on the 28th of March.

The *Third Term* commenced on the 13th of April, 1874, and ended with the Session, on the 13th of June.

N.B.—The Easter Recess for the Medical Faculty commenced on the Tuesday before Easter, and ended on Easter Monday.

LIBRARY AND MUSEUM.—The Library is open daily to Students between the hours of 9 A.M. and 4 P.M., except on Saturdays, when it is closed at 1 o'clock.

The Museum is open daily between the hours of 9 A.M. and 3 P.M., except on Saturdays, when it is closed at 12 o'clock.

STUDENTS.

Appendix A.
No. I.
General Regulations of College, &c.

The Students of the College are either Matriculated or Non-Matriculated.

MATRICULATED STUDENTS.—To become a *Matriculated Student*, it is necessary to pass the General Matriculation Examination which commenced in the Session of 1873–74, on Tuesday, the 21st of October, 1873.

The following are the Subjects in which Candidates are examined:—

For the Faculties of Arts, Medicine, and Law.

Greek:

Grammar.

Any one of the following Authors which the Candidate may select:—

Homer—Iliad, Books I. and II.
Xenophon—Anabasis, Books I. and II.
Lucian—Walker's Selections.

Latin:

Any one of the following Authors which the Candidate may select:—

Virgil—Æneid, Books I. and II.
Sallust—Conspiracy of Catiline.
Cæsar—Gallic War, Book I.

History:

Outlines of Grecian History.
Outlines of Roman History.

Geography:

Outlines of Ancient and Modern Geography.

English:

Grammar—

(1.) The principles of Etymology and Orthography.
(2.) The leading Rules of Syntax.

Composition, and writing from dictation.

Mathematics:

Arithmetic—Principles of Notation. Vulgar and Decimal Fractions. Definition of the terms Ratio and Proportion. The Rule of Proportion, with its commercial applications, including Simple Interest.

Algebra—Explanation of the signs and meaning of an Index. Calculation of the values of Algebraical Expressions, when particular values are given to the letters which they involve.

Euclid—Book I., with the definitions and axioms.

For the Department of Civil Engineering.

The Outlines of Modern Geography.

Grammar.

Mathematics:

Arithmetic—Principles of Notation. Vulgar and Decimal Fractions, with the reasons of the different rules. Rule of Proportion, with its commercial applications. Extraction of the Square Root, both of whole numbers and decimals.

Algebra—Explanation of the signs and meaning of an Index. Calculation of the value of Algebraic Expressions, when particular values are given to the letters which they involve.

Euclid—Books I., II., III., IV., and VI., with the definitions of Book V.

Candidates for Matriculation are requested to send their names to the Registrar, at least *three days* before the commencement of the Examination, stating at the same time the Faculty or Department which they propose to enter.

Before being admitted to Examination they are required to pay the *College Fees* for the year, amounting to Ten Shillings for each Faculty or Department. These will be returned, on application, to such as fail to pass the Examination.

No Student will receive a Certificate of Matriculation until he has paid the whole of the *Class Fees* for the Session.

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No. I.
General Regulations of College, &c.

Non-Matriculated Students.—Those who desire to attend any of the Lectures in the College may do so, without matriculating, or passing any of the College Examinations, on paying the Fees for those Lectures, together with a College Fee of Five Shillings.

They are entitled to the use of the Library, on subscribing the Library Regulations, and paying a further fee of Fifteen Shillings.

They are not eligible for Scholarships or Prizes, and do not enjoy any of the other privileges of Matriculated Students; but the Professors may recommend the Council to grant Certificates of Honour to the most distinguished.

Students from other Colleges.—Students who have pursued part of their studies in one of the Queen's Colleges, or in any University capable of granting Degrees in the Faculties of Arts, Law, and Medicine, are permitted, on producing testimonials of their College standing and conduct, to take corresponding rank in this College, and to compete for Scholarships of the corresponding year; provided that they shall not hold at the same time a Scholarship, or any other office of emolument, in any other University or College.

Residences.

There is no accommodation for the residence of students within the College, but it is provided by the Statutes that every Matriculated Student, being under the age of Twenty-one Years, shall reside, during the College Terms, with his parent or guardian, or with some relation or friend, to whose care he shall have been committed by his parent or guardian, or in one of the Boarding-houses licensed by the President of the College and arranged for the reception of students, who are then placed under the moral care and spiritual charge of the Deans of Residences of their respective creeds.

The Terms for Board and Lodging are generally at the rate of from £30 to £40 a year.

The following are the Protestant Deans of Residences:—

Church of Ireland,	Rev. George Webster, D.D.
General Assembly of the Presbyterian Church in Ireland,	Rev. William Magill.
Wesleyan Methodists,	Rev. William G. Price.
Non-Subscribing Presbyterian,	Rev. W. Whitelegge, M.A.

The Deans are designated as they wish themselves to be called.

Fees.

The Fees paid by Students are of two kinds: Collegiate Fees and Class Fees. The following are the regulations concerning the payment of Fees:

1. All Fees are to be paid to the Bursar, at his Office in the College.
2. Candidates for Matriculation are required to pay their *College Fees* before being admitted to Examination.
3. Students must pay their Class Fees before being admitted to the Classes; and if Candidates for Scholarships, must do so on or before the day previous to the date of Examination.
4. Half the Class Fees are returned to Scholars; but this rule does not extend to Exhibitioners.

Collegiate Fees.—For the First Year the College Fees are *Ten Shillings*; for the Second and subsequent years Five Shillings. Students who wish to borrow books from the Library are obliged to *deposit* One Pound with the Bursar.

Class Fees.—The ordinary fee paid for a course of Lectures is £2. For English and Logic the fee is only £1. For Practical Anatomy, Practical Chemistry, and the first course of Anatomy and Physiology, the fee is £3.

With reference to the Fee payable for repeated attendance on the same Course of Lectures, the following rule has been laid down in the Statutes:—

The Fees payable by Students, whether Matriculated or Non-matriculated, to the several Professors, for attendance on the several Pass Courses of Lectures or instruction, which are now or may be hereafter prescribed by the College Council, for any Degree or other University distinction, shall be £1 for each

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No. I.
General Regulations of College, &c.

Course extending over one Term only, and £2 for each Course extending over more than one Term of a Session, when attended for the first time, and £1 for each re-attendance on the same; except that the Fee payable for the Course of Anatomy and Physiology shall be £3 when attended for the first time, and £2 for every subsequent attendance; except also, that the Fee payable for Practical Anatomy or Practical Chemistry, shall be £3 for each attendance.

In the case of Students receiving special instructions, not prescribed as a qualification for a Degree or other University distinction, or attending Honor Courses of Lectures, the Council shall have power to fix the amount of the Fee to be paid by each Student; provided that the Fee to be paid for any Honor Course of Lectures which Students are entitled to substitute for a prescribed Pass Course, shall in no case be less than £2.

Lecture Hours.

Table of the Subjects and Hours of Lecture.

Name of the Class.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
Senior Greek,	9	9	10	–	9	–
Junior Greek,	10	–	9	9	10	–
Extra Greek,	–	10	–	10	–	–
Senior Latin,	10	–	9	–	10	–
Junior Latin,	9	10	10	10	–	–
Extra Latin,	–	11	–	11	–	–
English Language,	–	11	–	11	–	10
English Literature,	–	12	–	12	–	11
History,	12	–	12	–	12	–
Medical French,	12	–	12	–	12	–
Senior French (*Arts and Engineering*),	1	–	1	–	1	–
Junior French (*Arts and Engineering*),	2	–	2	–	2	–
German or Italian,	–	2	–	2	–	2
Logic,	–	11	–	11	–	9
Metaphysics,	–	1	–	1	–	10
Political Economy and Jurisprudence,	–	11	11	11	11	–
Senior Mathematics,	1	–	1	–	1	–
Junior Mathematics,	12	–	12	–	12	–
Third Year's Mathematics,	2	–	2	–	2	–
Mathematical Physics,	–	–	12	–	12	–
Mathematical Physics (*Engineering*),	2	–	1	–	2	–
Experimental Physics, Senior,	11	–	11	–	11	–
Experimental Physics, Junior,	–	11	–	11	–	–
Engineering Physics,	–	2	–	2	–	–
Physics (Honor),	–	12	–	12	–	–
Chemistry,	11	–	11	–	11	–
Practical Chemistry,*	2	–	2	–	2	–
Zoology and Botany,	3	–	3	–	3	–
Geology and Mineralogy,	–	2	–	2	–	12
Senior Engineering,	12	–	12	–	12	–
Junior Engineering,	–	10	–	10	–	10
Geometrical Drawing,	10	–	10	–	10	–
Office Work (10 till 2),	–	10	–	10	–	10
Anatomy and Physiology,	1	1	1	1	1	–
Practical Anatomy,	12	12	12	12	12	–
Medicine,	3	–	3	–	3	–
Surgery,	–	4	–	4	–	1
Materia Medica,	–	3	–	3	–	12
Midwifery,	4	–	4	–	4	–
Medical Jurisprudence,	–	12	–	12	–	2
English Law (1st year),	–	11	11	11	11	–
English Law (2nd year),	–	3	3	3	3	–
English Law (3rd year),	–	9	9	9	9	–
English Law (4th year),	–	12	12	12	12	–
Jurisprudence,	–	1	1	1	1	–
Civil Law,	–	4	4	4	4	–
Constitutional and International Law,	–	10	10	10	10	–

* Whenever it becomes necessary to divide the Practical Chemistry Class, the hours for the Second Class are at two on Tuesday and Thursday, and eleven on Saturday.

Appendix A.

No. I. General Regulations of College, &c.

COLLEGIATE SCHOLARSHIPS.

There are at the disposal of the Council Forty-six Junior and Eight Senior Scholarships.

The former are held by Students who have not yet taken the Degree of B.A.; the latter by Students who have obtained the Degree of B.A.

Of the Junior Scholarships—

Thirty, of the value of £24 each, are appropriated to the Faculty of Arts. (See p. 33).
Five, ,, ,, £20 ,, ,, School of Engineering. (See p. 46).
Eight, ,, ,, £25 ,, ,, Faculty of Medicine. (See p. 42).
Three, ,, ,, £20 ,, ,, Faculty of Law. (See p. 38).

Of the Senior Scholarships—

Seven, of the value of £40 each, are appropriated to the Faculty of Arts. (See p. 33).
One, ,, ,, £40 ,, ,, Faculty of Law. (See p. 42).

All these Scholarships are tenable for only one year, with the exception of the Scholarships of the Second Year in Arts, which are tenable for two years.

Conditions of Candidature and Tenure.

1. Candidates for Scholarships are required to pay on or before the day previous to the date of Examination, the College and Class Fees for the year in the corresponding Faculty. They must also procure a certificate to that effect from the Bursar, and be prepared to show it on their admission to Examination.

2. Scholarships of any year are tenable by Students who have duly completed the previous part of their Course by attending the requisite Courses of Lectures, and passing the ordinary College and University Examinations.

   A Student, as a rule, cannot hold two Scholarships at once; but if he be a Candidate for both the Junior Scholarships in Arts of the same year, and stand first on each list, he may hold both the Scholarships.

4. Half the ordinary Class Fees are returned to Scholars.

5. Scholars must complete their attendance during the Session, pass the Sessional Examinations, and observe such rules as the Council may from time to time enact.

6. In the Faculty of Medicine, Scholars must attend the Classes recommended for their year of study, in the order of the Curriculum.

7. Scholars and Exhibitioners have certain statutory duties; such as taking charge of the Class-rolls, registering the attendance of the Students, assisting the Professors in the maintenance of discipline and good conduct in the Students, and for the general business of the College.

[TABLE.

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General Regulations of College, &c.

TABLE OF THE TIMES AND SUBJECTS OF THE SCHOLARSHIP EXAMINATIONS FOR THE SESSION 1873–74.

Examination Days.	From 9 to 12 o'clock.	From 2 to 5 o'clock.
Thursday, October 23rd,	Geometrical Drawing. Surveying. Mathematics (Geometry Paper).*	Geology and Mineralogy. Surgery.
Friday, October 24th, .	Latin. Chemistry.	Mathematics. Practical Chemistry. Midwifery.
Saturday, October 25th,	Modern Languages. Political Economy.	Pathology. Latin.
Monday, October 27th,	Greek. Materia Medica. Therapeutics.	Greek. Zoology and Botany. Practical Anatomy. History and English Lit.
Tuesday, October 28th,	English Language (1st year). Natural Philosophy.	Anatomy and Physiology. Logic and Metaphysics.
Saturday, Nov. 29th, .	English Law.	Civil Law.

* The University Prizes in Geometry were decided on this paper, which was also taken into account in deciding the first year's Mathematical Scholarships.

Collegiate Exhibitions and Prizes.

The Council are authorized to grant in certain cases Exhibitions to Candidates who may have failed to obtain Scholarships at the Scholarship Examination.

In May and June are held General Examinations in the subjects lectured upon during the Session; and Prizes of Books are awarded by the Council to the most distinguished Students in each Class.

University Exhibitions and Prizes.

Exhibitions and Prizes are also given by the Senate of the University to Students, in the Faculties of Arts and Medicine, and in the School of Engineering, who shall most distinguish themselves at the various University Examinations.

Faculty of Arts.—The following are to be competed for immediately after General Matriculation:—

> Two Prizes for English Prose Composition and two for Geometry, given annually by the Senate of the University. The First Prize in each is £3 worth of Books; the second £2 worth of Books.

The subjects of Examination for the University Geometry Prizes are—

The first Four and Sixth Books of Euclid, with Definitions of the Fifth Book, and Geometrical deductions.

These Prizes are open to Students who have just passed the Matriculation Examination for the first time.

Three Exhibitions of £20 a year for three years, three Exhibitions of £15 a year for three years, and two Exhibitions of £10 a year for three years, will be competed for annually in the Faculty of Arts. The three £20 Exhibitions will be awarded to the Candidates who stand foremost in order of merit from each College, at the first University Examination in Arts; and the three £15 Exhibitions to the Candidates who stand second in order of merit from each College: provided that their names appear in the First Class of the Division List at that Examination. Of the two £10 Exhibitions, one will be awarded to the best answerer in Mathematical Science, and the other to the best answerer

Appendix A. No. I. General Regulations of College, &c.

in the Ancient Classics, at the first University Examination. The £10 Exhibitions are open to the competition of Candidates from all the Colleges, and may be held along with one of the larger Exhibitions.

Each Candidate will be deemed a Student of that College in which he shall have attended the Lectures of the second Session; and no Student will be admitted to the competition who shall have allowed more than one academic year to intervene between the time that he entered upon the studies of the second Session and the time of competition.

The first instalment of each Exhibition will be paid at the time of competition; the second when the Exhibitioner takes the Degree of B.A. in the Queen's University, provided he graduate with honors, and within two academic years; and the third when he takes the Degree of M.A. in the Queen's University, provided he obtain it within three academic years from the time of competition.

University Prizes in Composition, open to the Competition of Graduates and Undergraduates.

Two Prizes for English Prose Composition, one of £10 worth of Books, and the other of £5 worth of Books, have been founded, and are open to the competition of all members of the University who shall not have been graduates for more than three years at the time of competition, and who shall not have already twice obtained one or other of these Prizes.

University Prizes in Composition, open to the Competition of all Undergraduates.

Two Prizes in Composition, one for English Prose, the other for Greek or Latin Prose, and each consisting of £5 worth of Books, have been founded, and are open to the competition of all undergraduates, provided that neither the English nor the Classical Prize be awarded oftener than twice to any Student.

Faculty of Medicine.—Two exhibitions, one consisting of two instalments of £20 each, and the other of two instalments of £15 each, will be competed for annually in the Faculty of Medicine. These exhibitions will be awarded for proficiency in the non-professional part of the first University Examination in Medicine: the £20 exhibition to the best answerer absolutely, in whichever of the Colleges he may have been educated; and the £15 exhibition to the candidate who is first in order of merit of the competitors from the other two colleges; provided that their names appear in the First Class of the Division List at that examination.

Each Candidate will be deemed a student of that College in which he shall have attended the Lectures of the second session; and no student will be admitted to the competition who shall have allowed more than a year to intervene between the time that he entered on the studies of the second year and the time of competition.

The exhibitions in Medicine will be paid in two equal instalments: one at the time of competition; the other when the exhibitioner takes the Degree of M.D. in the Queen's University, provided that he graduate with honors, and within three academic years from the time of competition.

Prize in Composition, limited to the Competition of Undergraduates in Medicine.

A prize of £5 worth of books has been founded, for a thesis on a subject to be prescribed, and is limited to the competition of the Undergraduates in Medicine who shall not have already twice received the prize.

The subjects on which the competitors for composition prizes are to write, will be announced on or before the first of June in each year; the compositions, with fictitious signatures, are to be sent in to the Secretary of the University, on or before the first of the following September, and the successful competitors will be declared at the next Public Meeting of the University.

School of Engineering.—Two Exhibitions, one of £20 a year for two years, and the other of £15 a year for two years, will be competed for annually in the School of Engineering. These Exhibitions will be awarded at the first University Examination in Engineering: the £20 Exhibition to the best answerer absolutely, in whichever of the Colleges he may have been educated, and the £15

Exhibition to the Candidate who is first in order of merit of the competitors from the other two Colleges: provided that their names appear in the First Class of the Division List at that Examination.

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No. I.
General Regulations of College, &c.

Each Candidate will be deemed a Student of that College in which he shall have attended the Lectures of the second Session; and no Student will be admitted to the competition who shall have allowed more than a year to intervene between the time that he entered on the studies of the second year and the time of competition.

The first instalment of each Exhibition will be paid at the time of competition; the other when the Exhibitioner takes the Diploma in Engineering of the Queen's University, provided that he take honors with it, and obtain it within two academic years from the time of competition.

OTHER PRIZES.

The Early English Text Society's Prizes.

With a view to the encouragement of the study of Early English, the Early English Text Society has kindly offered for the competition of the Students of Queen's College, Cork, valuable prizes consisting of the rare works in Early English published under its auspices.

An examination for these prizes was held on the 23rd of April, 1874, and was open to all Matriculated Students of the College who were not Graduates at that date, the following being the course appointed:—

1. Outlines of the History of the English People, to the accession of Henry IV.
2. The History of English Literature, to the death of Chaucer.
3. Outlines of Anglo-Saxon Grammar (Rask recommended).
4. Morris—English Accidence, Caps. III., IV., and V.
5. Chaucer—The Prologue to the Canterbury Tales.

DEGREES.

The Certificates, Diplomas, and Degrees granted by the Senate of the Queen's University are as follows:—

In the Faculty of Arts—
  The Diploma of Licentiate.
  ,, Degree of Bachelor (B.A.)
  ,, ,, Master (M.A.)

In the Faculty of Law—
  Certificate of the Law Professors.
  The Diploma in Elementary Law.
  ,, Degree of Bachelor (LL.B.)
  ,, ,, Doctor (LL.D.)

In the Faculty of Medicine—
  The Degree of Doctor (M.D.)
  ,, ,, Master in Surgery (M.Ch.)
  ,, Diploma of Midwifery.

In the School of Civil Engineering—
  The Degree of Bachelor (B.E.)

No. II.—FACULTY OF ARTS.

No. II.
Faculty of Arts.

DEGREES.

1. DIPLOMA OF LICENTIATE IN ARTS.

Candidates for this Diploma are required—

1. To have matriculated in one of the Colleges of the Queen's University.
2. To have pursued in one of the Colleges of the Queen's University the Course therein prescribed.
3. To have passed the University Examinations prescribed.

Appendix A.

Course for the Diploma of Licentiate in Arts.

No. II. Faculty of Arts.

The Course for the Diploma of Licentiate in Arts shall extend over two Sessions, and shall comprise attendance on the following curriculum:—

FIRST SESSION.

Two Languages, of which one may be English.
Mathematics.
Another Course on any subject in the annexed list.

SECOND SESSION.

Greek, Latin, or a Modern Continental Language.
Logic (One Term).
Natural Philosophy.
And two other Courses on subjects in the annexed list.

If any of the Courses, except that on Logic, extend over one Term only, some other Course from the annexed list must be attended as a supplement to it, but not necessarily in the same Session.

Credit will not be given for attending the same Course of Lectures a second time.

Attendance on the Courses shall, in all cases, be understood to include passing such Examinations as the College Council shall appoint, and the catechetical parts of the Courses of Lectures.

Candidates for the Diploma of Licentiate in Arts shall reside at their respective Colleges during at least the first two terms of each Session.

After having completed the above curriculum, Candidates for the Diploma shall pass a University Examination in Greek, Latin, or a Modern Continental Language; in Mathematical Science; and in two other subjects selected from the annexed list, viz.:—

The Mathematical Sciences.
The Experimental Sciences.
The Natural Sciences.
Geometrical Drawing.
Mensuration, Levelling, and Mapping.
Anatomy and Physiology.
English Language and Literature.
The Modern Continental Languages.
Greek.
Latin.
Logic.
Metaphysics.
History.
Political Economy.

English Composition will form a part of all University Examinations.

Licentiates in Arts who may desire to proceed to the Degree of Bachelor in Arts, may enter directly on the second Session in the Course for this Degree, provided they attend in it, instead of the usual curriculum, all the Courses prescribed for the first two years which they shall not have already attended in the curriculum for the Diploma of Licentiate.

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2. Degree of B.A.[*]

Students intending to proceed to this degree in the Queen's University must matriculate in one of the Queen's Colleges, and complete the course of study prescribed by the University Senate, by attending the College Lectures in each Session, and passing the Sessional Examinations.

The B.A. Examination takes place in the September after the close of the third Session, and Candidates must have previously passed the "First Examination in Arts," a preliminary examination which takes place at the commencement of the Third Session.

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[*] His Royal Highness the Commander-in-Chief has approved of Graduates of the Queen's University being in future exempted from the usual Examination for direct Commissions; and also of the First University Examination being accepted in lieu of that for the Royal Military College, Sandhurst.

Course for the Degree of Bachelor in Arts.

Appendix A.

No. II.
Faculty of Arts.

Candidates for the Degree of Bachelor in Arts are required—

1. To have been admitted Matriculated Students of the Queen's University in the Faculty of Arts.
2. To have subsequently studied in one of the Colleges of the Queen's University the Course herein prescribed.
3. To have passed the University Examinations herein prescribed.

The Course for the Degree of Bachelor in Arts shall extend over three Sessions, and shall comprise attendance on the following curriculum :—

FIRST SESSION.

English (One Term).
Greek.
Latin.
A Modern Continental Language.
Mathematics (First Course).

SECOND SESSION.

Logic (One Term).
Natural Philosophy.

Along with any two of the following :—

Greek (Second Course).
Latin (Second Course).
Modern Continental Languages (Second Course).
Mathematics (Second Course).

THIRD SESSION.

English Language and Literature.
Metaphysics, or History, or Political Economy (Two Terms).
Chemistry.
Zoology, or Botany.

Attendance on these Courses shall, in all cases, be understood to include passing such examinations as may be appointed by the College Council, and the catechetical parts of the Courses of Lectures.

Candidates for the Degree of Bachelor of Arts shall reside at their respective Colleges during at least the first two terms of each Session, but may be exempted from residence during the third term by a special grace of the College Council.

Third year's Students may substitute attendance on one or on two Courses of Honor Lectures, for a like number of the Courses above set down for study in the third Session.

Candidates for the Degree of Bachelor in Arts shall pass two University Examinations—a Preliminary and a Degree Examination.

The Course for the Preliminary Examination shall include Greek, Latin, a Modern Continental Language, and Mathematical Science. Students who have completed their second Session must pass this Examination before rising to the third year, unless prevented by illness or other inevitable accident, in which case the Senate may admit them to a Supplementary Examination.

Candidates who have completed the Undergraduate Course, may offer themselves at the Degree Examination for graduation either with Honors or without Honors.

If they seek to graduate with Honors, they may select for their Examination any one of the following groups :—

Greek and Latin.
Modern Continental Languages.
Mathematical Science.
Experimental Science.
Natural Science.

Or any three of the following :—

English Language and Literature.
Metaphysics.
History.
Political Economy.
Logic.

Appendix A
No. II.
Faculty of Arts.

Candidates who seek the Degree without Honors, may select for their Examination any group of the subjects from the following lists, provided the sum of the numbers attached in this list to the selected subjects be at least four:—

English Language and Literature,	2	Latin,	1
Mathematical Science,	2	Each Modern Continental Language,	1
Experimental Physics,	2	Logic,	1
Chemistry,	2	Metaphysics,	1
Zoology,	1	History,	1
Botany,	1	Political Economy,	1
Greek,	1		

English Composition will form a part of all University Examinations.

3. DEGREE OF M.A.

Candidates for the Degree of M.A. are admitted to the University Examinations for that Degree one year after having taken the Degree of B.A.

Course for the Degree of Master in Arts.

Bachelors in Arts of one year's standing, may offer themselves for Examination for the Degree of Master in Arts, and may select for their Examination any one of the following groups:—

Greek and Latin.
Modern Continental Languages.
Mathematical Science.
Experimental Science.
Natural Science.

Or any three of the following:—

English Language and Literature.
Metaphysics.
History.
Political Economy.
Logic.

This Ordinance supersedes former Ordinances prescribing the curriculum for the Degree of Master in Arts.

LECTURES.

The Lectures in this Faculty for the Session 1873-74, commenced on *Monday, the 27th October*, 1873.

The following Table shows the days, hours of Lectures and fees for the ordinary course. In accordance, however, with the regulations of the University for the Degree of B.A., Students may substitute for one or two Courses in the third year a like number of Honor Courses:—

	CLASS.	Terms.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Fees. £	s.	d.
First Session.	English,	2	–	11	–	11	–	10	1	0	0
	Greek,	1, 2, 3	10	–	0	9	10	–	2	0	0
	Latin,	1, 2, 3	0	10	10	10	–	–	2	0	0
	Modern Languages,	1, 2, 3	2	–	2	–	2	–	2	0	0
	Mathematics (1st Course)	1, 2, 3	12	–	12	–	12	–	2	0	0
	College Fee,	–	–	–	–	–	–	–	0	10	0
Second Session.	Logic,	2	–	11	–	11	–	9	1	0	0
	Natural Philosophy,	1, 2, 3	11	–	11	–	11	–	2	0	0
	Greek (2nd Course),	1, 2, 3	9	9	10	–	9	–	2	0	0
	Latin ,,	1, 2, 3	10	–	9	–	10	–	2	0	0
	Modern Languages ,,	1, 2, 3	1	–	1	–	1	–	1	0	0
	Mathematics ,,	1, 2, 3	2	–	2	–	2	–	2	0	0
	College Fee,	–	–	–	–	–	–	–	0	5	0
Third Session.	English Language and Literature,	1, 2	–	12	–	12	–	11	2	0	0
	Chemistry,	1, 2, 3	11	–	11	–	11	–	2	0	0
	Metaphysics, or	1, 2	–	1	–	1	–	10	2	0	0
	History, or	1, 2	12	–	12	–	12	–			
	Political Economy,	1, 2	–	11	11	11	11	–			
	Zoology or Botany,	–	3	–	3	–	3	–	2	0	0
	College Fee,	–	–	–	–	–	–	–	0	5	0

No. II. Faculty of Arts.

HONOR COURSES.

By the regulations of the University Senate, a Student of the third year may substitute for two courses in the ordinary curriculum the same number of honor courses.

Under this Regulation Candidates are at liberty to substitute one or two of the following courses for a like number of the courses set down in the above table for study in the Third Session, viz.:—

- Greek,
- Latin,
- Pure Mathematics,
- Mathematical Physics,
- Experimental Physics,
- Geology & Physical Geography,
- French,
- German,
- Italian,
- Logic;

provided that the Rules of the College Council admit of their making this substitution, and provided further that the courses substituted are courses specially preparing Students for one or more of the Honor Examinations for the degree of B.A.

Candidates are allowed under the same conditions to attend Honor Courses on two of the subjects, Metaphysics, History, and Political Economy, as two of the courses of the Third Session. Candidates who avail themselves of this permission are at liberty to attend the third of these subjects as another course of the Third Session.

A similar interpretation applies to the courses of Botany and Zoology, which will count as two courses of the Third Session, provided that one of them be an Honor Course, attended under the conditions stated above.

OUTLINES OF THE COURSES OF LECTURES DELIVERED BY THE PROFESSORS OF THE FACULTY OF ARTS.

LITERARY DIVISION OF THE FACULTY OF ARTS.

The Greek Language.

Professor, JOHN RYALL, LL.D.

Junior Class: Monday, Wednesday, Thursday, and Friday.
Xenophon—Memorabilia, Book I. Euripides—Medea.
Second Year: Monday, Tuesday, Wednesday, and Friday.
Homer—Odyssey, Book I., V. Euripides—Iphigenia in Aulide.
Demosthenes—Olynthian Orations.
Third Year: Tuesday, Thursday.
Aristophanes—Aves. Plato—Protagoras. Thucydides, Book VII.
Exercises in Prose and Verse, according to the proficiency of the Students.

The Latin Language

Professor, BUNNELL LEWIS, M.A., F.S.A.

Senior Class, Monday, Wednesday, and Friday:
Juvenal, III., IV., V., VII., VIII., X.
Cicero—Ad Familiares, part of Book II.
Junior Class, Monday, Tuesday, Wednesday, and Thursday:
Tacitus—Part of the Germania.
Horace—Odes, Book III.
Exercises in both Classes chiefly from Arnold's Introductions to Latin Composition.
Extra and Third Year's Class, Tuesday and Thursday:
Tacitus—Annals, Book VI.
Virgil—Æneid, Book VIII.

In this Class special attention is paid to original Composition, and to translation from English Authors into Latin,

Appendix A

No. II.
Faculty of Arts.

History, the English Language and English Literature.

Professor, GEORGE FRANCIS ARMSTRONG, M.A,

1st and 2nd Term. } History—Monday, Wednesday, and Friday.
2nd Term—The English Language—Tuesday, Thursday, and Saturday.
1st and 2nd Term. } English Literature—Tuesday, Thursday, Saturday.

History:

European History—From the Decline of the Roman Empire to the present time.

THE ENGLISH LANGUAGE.

The History of its development.

Books recommended:—

Morris—Historical Outlines of English Accidence.
Trench—Study of Words: English, Past and Present.
Marsh—Lectures on the English Language.
Rask—Anglo-Saxon Grammar (edited by Thorpe); or Vernon—Anglo-Saxon Guide.
Thorpe—Analecta Anglo-Saxonica.
Morris and Skeat—Specimens of Early English.
Morris—The Prologue to Chaucer's Canterbury Tales, and the Editor's Introduction.
Skeat—Specimens of English Literature.
Rushton—Rules and Cautions in English Grammar.
Max Müller—Science of Language.
Whately—Elements of Rhetoric.
Campbell—Philosophy of Rhetoric.

Essays and Translations will be required of the Students from time to time.

ENGLISH LITERATURE.

History and Criticism of the Literature of England from the earliest period to the present day.

The Lives of the Great English Writers.

The Epochs of Foreign Literature which have most affected the form and spirit of the Literature of England.

Books recommended:—

Craik—History of English Literature.
Chambers—Cyclopædia of English Literature.
Hallam—Introduction to the Literature of Europe.
Taine—History of English Literature, translated by H. Van Laun.

Critical Essays on subjects treated of in the Lectures will be required of the Students at set times.

Modern Languages.

Professor, R. DE VERICOUR, M.A.

French Class (Medical), Mondays, Wednesdays, and Fridays, at 12 o'clock.

Senior French (Arts and Engineering), Mondays, Wednesdays, and Fridays, at 1 o'clock.

Junior French Class (Arts and Engineering), Mondays, Wednesdays, and Fridays, at 2 o'clock.

German or Italian, Tuesdays and Fridays, at 2 o'clock.

Medical French—L'Annee Scientifique pour 1872, par Louis Figuier (Hachette, King William Street, London.) Extracts from Bichat, Andral, Lallemand, and Chomel. Weekly Lectures on the Grammar and Idioms.

Senior and Junior French—Textes classiques de la Littérature Française par S. Demogeot. Fables de Lafontaine. Histoire de la Revolution Française, par Mignet. Histoire de la Littérature Française, par Demogeot. Weekly Lectures on the Grammar and Idioms.

Italian—Silvio Pelico. Tasso. Extracts from Macchiavelli, Guicciardini, Manzoni. Weekly Lectures.

German—Göethe's Ballads and Iphigenie. Schiller's Wilhelm Tell. National Literature, Von A. F. Villmar. Weekly Lectures.

SCIENCE DIVISION OF THE FACULTY OF ARTS.

Mathematics.

Professor, CHARLES NIVEN, M.A.

Junior Class, Monday, Wednesday, and Friday.
Subjects—Arithmetic, Algebra, Geometry, and Plane Trigonometry.

Second Year's Class, Monday, Wednesday, and Friday.
Subjects—Analytical Geometry, Trigonometry, Differential and Integral Calculus.

Third Year's Class:
Subjects—Geometry of three dimensions, Differential Equations, &c.
Exercises are regularly set in each of the Classes.

Logic and Metaphysics.

Professor, GEORGE SIDNEY READ, M.A.

2nd Term, . Logic, . Tuesday, Thursday, and Saturday.
1st & 2nd Terms, Metaphysics, Do. do. do.

LOGIC.

This Course consists of:—

I.—Lectures, Examinations, and Exercises in Aldrich's Compendium of Logic, occupying the early part of the Term, &c.
II.—A full discussion of Classification, the Theory of Hypothetical Syllogisms and of Induction, and the Analytic of Logical Forms, as contained in the works of Mill, Whately, Thompson, and Baynes.

Throughout the Course the Students will be expected to familiarize themselves with the reduction of arguments to their strict Logical Form by written exercises, which will be examined by the Professor.

METAPHYSICS.

This Course will embrace:—

I.—The Philosophy of the Inductive Sciences, illustrated by reference to Lord Bacon, Whewell, and Mill; and—
II.—The History of Mental Philosophy, comprising—
  1st—The origin, progress, and development of Modern Philosophy anterior to the rise of the Scottish School.
  2nd—A critical examination of the works of the more celebrated writers of that School.
  3rd—A brief view of the present state of Philosophy in the British Islands and on the Continent.

Political Economy.

Professor, RICHARD HORNER MILLS, M.A.

Political Economy.—The nature and distribution of wealth, the principles which regulate Rents, Profits, and Wages; the Principles of Commerce, of Taxation, of the Funding System, and of Currency and Banking.

Books recommended:—

Adam Smith—Wealth of Nations.
Senior—Political Economy.
Fawcett's Manual of Political Economy.
John Stuart Mill—Political Economy.
Richard H. Mills—Lectures on Currency and Banking (Second Edition).
M'Culloch—Taxation and Funding (Third Edition).
Goschen on Foreign Exchanges.

The Course consists of Twenty-four Lectures, delivered in the months of December, February, and March; the Students are required in the intervals to prepare the subjects which will be pointed out by the Professor.

Appendix A.

No. II.
Faculty of
Arts.

Chemistry.

Professor, Maxwell Simpson, D.A., M.D., F.R.S.

Monday, Wednesday, and Friday.

The Course is divided into Inorganic and Organic Chemistry.

In the first part are discussed the Laws of Combination and Affinity, Molecular Chemistry and Crystallography, and the History of the Non-Metallic and Metallic substances.

In the Organic portion of the Course will be considered the subjects of Organic Analysis, Organic Series, Compound Radicals and Types, Metamorphosis of Organic Bodies, History of special Animal and Vegetable Bodies.

In treating of the Laws of Chemistry, and the History of Inorganic and Organic Bodies, those points will be chiefly dwelt upon which have a practical bearing in the Arts, Medicine, Engineering, and Agriculture. Hence, during the Course, attention will be directed to the application of Chemistry to Medicine and Physiology, to Metallurgic Operations, Chemical Manufactures, Building Materials, Soils, Manures.

Fee, for each Sessional Course, £2. Each subsequent Course in Medicine, £1.

Text Books recommended—Roscoe, Williamson, Fowns, Miller, Regnault.

Analytical Chemistry:

The Chemical Laboratory is open daily, except on Saturdays, from 10 to 4 o'clock, under the superintendence of the Professor, to students desirous of prosecuting an extended course of qualitative and quantitative analysis, and for the purpose of original investigation in connexion with the arts, or in the higher departments of Scientific Chemistry.

Natural Philosophy.

Professor, John England, M.A.

Experimental Physics (Senior):

Text Books—Galbraith and Haughton's Manuals of Mechanics, Hydrostatics, &c.; Jamin; Traité de Physique.

Experimental Physics (Junior):

Text Books—Ganot, Traité de Physique.

Mathematical Physics:

Text Books—Duhamel's Mecanique. Parkinson's Optics. Brinkley's Astronomy.

Engineering Physics:

Text Books—Tate's Exercises in Mechanics, selections from the works of Mosely, De Pambour, Weisbach, Twisden's Practical Mechanics, &c.

Natural History.

Professor, Joseph Reay Greene, B.A., M.D.

Monday, Wednesday, and Friday.

The Professor of Natural History will deliver a course of Lectures on Zoology and Botany.

Students may obtain Certificates of Attendance on either or both of these subjects. The Zoological part of the course will extend from the first Lecture-day in November to the end of February. The Botanical Lectures will occupy the remainder of the Session.

The Course will be arranged as follows:—

ZOOLOGY.

(About Forty Lectures.)

Invertebrate Animals (First Term).—Plants and Animals; the Animal Kingdom; the Lowest Animals; Infusories; Sponges; Cœlenterate Animals; Hydrozoans; Anthozoans and Beroës; Molluscoids; Brachiopods; Lamellibranchs; Gasteropods; Cephalopods; Echinoderms; the Lower

Appendix A.

No. II.
Faculty of Arts.

Worms; the Higher Worms; Crustaceans; Insects (Arachnids and Myriapods); Insects (Hexapods); Review of the Higher Invertebrates.

VERTEBRATE ANIMALS (Second Term).—Vertebrate Animals; Leptocardians and Fishes; Marsipobranchs and Elasmobranchs; Ganoids and Sirenoids; Teleosteans; Batrachians; Reptiles; Ophidians and Lacertilians; Crocodilians and Chelonians; Extinct Reptiles; Birds; Typical Birds; Aberrant Birds; Mammals; Aplacental Mammals; Edentate and Mutilate Mammals; Ungulate Mammals; Micromammals; the Higher Mammals; Review of the Animal Kingdom.

BOTANY.

(Thirty Lectures.)

GENERAL BOTANY.—The parts of Plants; Protoplasm and Vegetable Cells; Tissues of Plants; the Life of Plants; Classification of Plants.

CRYPTOGAMIC BOTANY.—Cryptogams: Algæ; Mycetes; Mosses and allied Plants; Vascular Cryptogams

GENERAL MORPHOLOGY OF PHÆNOGAMS.—The Stem; Buds and Branches; Roots; Leaves; Flowers; the Fruit; the Seed; Homologies of Phænogams.

SPECIAL MORPHOLOGY OF PHÆNOGAMS.—Dicotyledons: Thalamiflorals; Disciflorals; Calyciflorals; Epigynous Gamopetals; Apogynous Gamopetals; Apetals; Gymnosperms. Monocotyledons: Epigynous Monocotyledons; Apogynous Monocotyledons; Glumiflorals.

Text Books:

Henfrey.—Elementary Course of Botany. (Second Edition, by Dr. Masters.)
Huxley.—Introduction to the Classification of Animals.

The following are also recommended:

Hooker, J. D.—Student's Flora of the British Islands.
Lindley.—Descriptive Botany.
Oliver.—First Book of Indian Botany.
Rolleston.—Forms of Animal Life.

Those who wish fully to profit by the above Lectures would do well to read, before attending them, Huxley's Lessons in Elementary Physiology and Oliver's Lessons in Elementary Botany.

Geology and Mineralogy.

Professor, ROBERT HARKNESS, F.R.SS.L. & E., F.G.S.

Tuesday, Thursday, and Saturday.

General Structure of the Earth; the causes at present in operation which modify its surface; Nature of Rocks which enter into composition with the crust of the Globe; description and classification of Sedimentary Deposits; Organic Remains; Physical Geography of the Earth during the several geological epochs; characters and nature of Igneous, Plutonic, and Metamorphic Rocks; Mineral Veins—their contents and mode of occurrence; application of Geology to Engineering and Mining.

Forms, Structure, Physical and Chemical characters of Minerals; descriptions of the most important simple minerals—circumstances and conditions under which they are found.

Text Books—Lyell's Students Elements of Geology—Herschell's Physical Geography—Nicol's Manual of Mineralogy.

SCHOLARSHIPS.

In the Faculty of Arts, there are Thirty Junior and Seven Senior Scholarships. Of the former there are awarded—

To Students of the first year, 5 in Literature and 5 in Science.
" second " 5 " 5 "

The Scholarships of the second year are held for two years under certain conditions.

The Senior Scholarships in Arts are tenable only by Graduates of less than two years' standing from the time of taking the Degree of B.A. They are thus appropriated:—

One in the Languages, Literature, and History of Ancient Greece and Rome.

Appendix A.

No. II.
Faculty of Arts.

One to Modern Languages, Literature, and History, viz., English Language, Literature, and Composition; European and English History; the French Language, with German or Italian.

One to Mental and Social Science, viz., Logic, Metaphysics, and Political Economy.

One to Mathematics, viz., Pure Mathematics.

One to Natural Philosophy, viz., Experimental Physics, and Mixed Mathematics.

One to Chemistry, viz., Theoretical and Practical Chemistry.

One to Natural History, viz., Zoology and Botany, Geology, and Physical Geography.

Subjects of Examination for Literary Scholarships of the First Year.

The Greek Language:

Homer—The Iliad, Books I., II., III., IV., V., and VI.
Euripides—Phœnissæ.
Herodotus—The Second Book.
Xenophon—The Anabasis, Books I., II., III.
Lucian—Walker's Selections.
Greek Prose—Translation of short sentences from English into Greek.
For 1874, Herodotus was omitted, and the Fourth Book of the Anabasis added.

The Latin Language:

Virgil—First six Books of the Æneid; the Georgics.
Horace—First two Books of the Odes, the Satires, and the Epistles, Books I., II.
Cicero—De Senectute, De Amicitiâ.
Sallust—Conspiracy of Catiline, and Jugurthine War.
Cæsar—The Gallic War, Books V., VI.
Latin Prose—Re-translations from English into Latin, of portions of Cicero.
N.B.—The Examination in Greek and Latin was conducted partly *vivâ voce*, and partly by printed questions.

The English Language:

Original Essays on subjects proposed by the Examiner. The Principles of English Grammar. The Laws of Etymology and Orthography. Craik's Outlines of the History of the English Language.

History and Geography:

Grecian History to the Death of Alexander the Great.
Roman History to the Accession of Augustus.
Outlines of Ancient and Modern Geography.

Subjects of Examination for Literary Scholarships of the Second and Third Years.

The Greek Language:

Homer—Iliad, Books VII., VIII., IX., X.
Euripides—Medea.
Plato—Apology.
Herodotus—Book IX.

Prose Composition.

The Latin Language:

Virgil—Eclogues and Æneid.
Horace.
Terence—Heauton Timorumenos.
Cicero—Tusculan Disputations.
,, De Oratore.
Juvenal—Satires I., III., VIII., X., XIII., XIV.
Livy, Book IV.
Tacitus—Histories, Book I.

Composition in prose and verse.

The English Language:

Morris—Historical outlines of English Accidence, Chaps. I., II., III., IV., V.
Rask—Anglo-Saxon Grammar, edited by Thorpe.
The English of Chaucer, as illustrated by the Prologue to the Canterbury Tales. Morris's Edition, with the Editor's Introduction.
The History of the English People, up to the death of Richard II.
English Composition.

The French Language:
Molière—L'Avare; Le Misanthrope.
Lafontaine—Fables.
Histoire de la Littérature Française, par Domogoot.
Translation from English into French.

Subjects of Examination for Science Scholarships of the First Year.

Arithmetic.
Mensuration of Rectilineal Figures and of the Circle.

Algebra:
The Solution of Simple and Quadratic Equations, with one or more unknown quantities. Easy questions in the application of Algebra to Geometry. Arithmetical and Geometrical Progressions. The nature of Logarithms.

Euclid:
Books I., II., III., and IV., with deductions.

Trigonometry:
Definitions of the Sine, Tangent, &c., of an angle. The easier analytical formulæ. The Solution of Plane Triangles, with demonstrations. Nature and Use of the Tables.

Subjects of Examination for Science Scholarships of the Second and Third Years.

The Higher Arithmetic, with Mensuration.

Algebra:
The Solution of Equations, with one or more unknown quantities. Elimination. Theory and use of Logarithms. Theory of Equations. Binomial and Exponential Theorems. Compound Interest and Annuities.

Geometry:
Euclid, Books I., II., III., IV., VI.; Definitions of Book V., and first 21 Propositions of Book XI., with deductions. Analytical Geometry.

Trigonometry:
The Solution of Plane Triangles, with demonstrations of the formulæ. Theorems relating to single arcs. Theorems relating to the sums and differences of arcs. Application to heights and distances.

For the Senior Scholarships in the Greek and Latin Languages, and Ancient History.

The Greek Language:
Æschylus—Persæ.
Together with the subjects for the B. A. Honor Examination at the University.
Composition in Attic Prose.
Greek Literature and History.

The Latin Language:
Virgil.
Horace.
Lucretius, Books I., II.
Ovid—Fasti, Book I.
Persius.
Terence—Andria and Heauton Timorumenos.
Plautus—Capteivei and Pseudolus.

Cicero—De Oratore.
,, Tusculan Disputations.
,, Ad Atticum, Books I., II.
,, Actiones Verrinæ.
Livy—Books IV. and XXII.
Tacitus—The Annals, Books I. to IV. inclusive.

Composition in prose and verse.

For Senior Scholarships in Modern Languages, Literature, and History.

The French Language:
Lavallée—Histoire des Français.
Histoire de la Littérature Française, par Demogeot ou Nisard.

The German Language:
National Literature, von A. F. Vilmar.
Schiller's Maria Stuart.
Goethe's Iphigenie.
Translation from English into one of the above Languages.

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The Italian Language:
  Tasso—Gerusalemme Liberata—first five Cantos.
  Dante's Inferno—Italian Literature, published by Messrs. Chambers.
  Translation from English into French, German, or Italian.

English:

THE ENGLISH LANGUAGE.
  The History of the English Language.

ENGLISH LITERATURE.
  Chaucer—The Canterbury Tales. Chaucer's Life. The Literary Influences affecting his style and matter.
  Spenser—The Faërie Queene, Books I. and II. (Kitchin's Edition). Spenser's Life. The Literary Influences affecting him.
  Shakespeare—Hamlet. The Merry Wives of Windsor. Shakespeare's Life.
  The Literary History of the Elizabethan Age.
  Milton—Paradise Regained. Milton's Life.
  Pope—Essay on Man. Johnson's Life of Pope.
  Wordsworth—The Excursion. The Characteristics of Wordsworth and his School.
  History—Hallam's Middle Ages.
    Chap. II., Part 1, The Feudal System.
    Chap. VIII., Part 1, Anglo-Saxon Constitution.
    Chap. VIII., Part 2, The Anglo-Norman Constitution.
    Chap. VIII., Part 3, The English Constitution.

For the Senior Scholarship in Mathematics.

The subjects of previous Examinations (for which see page 35), with the following additions:—

Analytical Geometry of Three Dimensions.
Differential Equations.

For the Senior Scholarship in Natural Philosophy.

Duhamel—Mécanique.
Brinkley—Elements of Astronomy, including the Appendix.
Parkinson's Optics.
Everett's Translation of Deschanel's Natural Philosophy.

For the Senior Scholarship in Mental and Social Sciences.

The subjects discussed in the Lectures of the Professors, with the following additions:—

Metaphysics and Logic:
  Sir William Hamilton's Philosophical Essays and Notes on Reid.
  Mill—System of Logic, Book III. to the end of Volume I.

Political Economy:
  Principles of Political Economy, by John Stuart Mill.
  Goschen on Foreign Exchanges.
  R. H. Mills—Lectures on Currency and Banking—second edition.

The value attached to the subjects will be in the following proportions, viz.:—

Metaphysics and Logic, . . .	60
Political Economy, ...	40

For the Senior Scholarship in Chemistry.

Chemical Physics (in Miller's Chemistry).

Inorganic Chemistry:
  General principles of Chemical Philosophy. Modern views of Chemistry. Crystallography.
  Chemistry of the Metals. Constitution of Salts. Metallurgy.

Organic Chemistry:
  Ultimate analysis of Organic Bodies. Recent views of the constitution of Organic Bodies. Empirical and Rational formulæ. Determination of the density of Vapours. Law of Substitution. Homologous Series. Chemical Types. Preparation and Properties of the Alcohol Series and their Derivatives. Cyanogen, its Compounds and Derivatives. Organic Bases of Artificial Origin.

Practical Chemistry:
  The Analysis of Mixtures, containing two or more Acids and Bases.

Appendix A.

For the Senior Scholarship in Natural History.

No. II. Faculty of Arts.

The Lectures of the Professors.
Henfrey—Elementary Course of Botany. (Second Edition, by Dr. Masters). Parts I. and III.
Oliver—First Book of Indian Botany.
Rolleston—Forms of Animal Life. The Introduction and Description of the Plates (pp. 167–259).
Lyell—Students' Elements of Geology.

See Appendix No. I., p. 23, for the University Exhibitions and Prizes in the Faculty of Arts.

No. III.—FACULTY OF LAW.

No. III. Faculty of Law.

DEGREES.

Candidates for the Diploma of Elementary Law must have passed a Matriculation Examination, and pursued the following

Course of Study for the Diploma of Elementary Law.

FIRST SESSION.

Law of Real Property, Principles of Conveyancing—Jurisprudence.

The Course of the Professor of English Law for the First Year's Class comprises Elementary Instruction in the Law of Real Property, and in practical Conveyancing. The text-book read is "Williams on Real Property."

The following works are recommended for perusal:—

Blackstone's Commentaries, by Stephen, Vol. I., and Vol. II. of Kerr's edition of the same work.

SECOND SESSION.

Law of Personal Property, Equity, and Bankruptcy—Civil Law.

The Course of the Professor of English Law for the Second Year's Class comprises instruction in the Law of Personal Property, Equity, Bankruptcy, and the practice relating to those branches of Law. The text-books read are, "Smith on Contracts," "Williams on Personal Property," and "Snell's Principles of Equity."

The following are recommended for perusal:—

Blackstone's Commentaries, by Stephen, Vol. II., same, by Kerr, Vol. II., Smith's "Mercantile Law," Smith's "Manual of Equity," Story's "Equity Jurisprudence," Vol. I.; Kisbey on the Bankruptcy Acts, 1857 and 1872; the Debtors' Act, 1872.

THIRD SESSION.

Common and Criminal Law.

The Course of the Professor of English Law for the Third Year's Class comprises the History, Constitution, and Jurisdiction of the several Courts of Justice, and their Procedure. The text-books are the third and fourth volumes of Blackstone's Commentaries, editions by Stephen and Kerr.

The following works are recommended for perusal:—

"Broom's Common Law," "Broom's Legal Maxims," "Smith's Leading Cases," "Copinger's County Courts," by Johnstone, Common Law Procedure Acts, 1853 and 1856, &c., by Bewley and Nash; Woolrych's Criminal Law, or Russell on Crimes.

Candidates for the Degree of LL.B. will be admitted to Examination for that Degree from the Queen's University in Ireland, provided they shall have proceeded to the Degree of A.B., and shall have attended the Lectures and passed the Examinations prescribed for the Diploma of Elementary Law.

Students who have obtained the Degree of LL.B. will, at the expiration of two years after they have obtained the Degree, be admitted to the Examination

Appendix A. No. III. Faculty of Law.

for the Degree of LL.D. They are examined in the Laws of the Admiralty and Ecclesiastical Courts of England and Ireland, and in International Law, for which Examination the following Books are suggested:—

Lord Hale's Treatise, De Jure Maris.
Dr. FitzHenry Townsend's statement of the differences in Jurisdiction and Practice between the English and Irish Courts of Admiralty, annexed to the Report of the Royal Commission of Inquiry, 1864.
Rogers' Ecclesiastical Law.
Wheaton's International Law.
"Historicus," Letters of, on International Law.

LECTURES.

The complete Course for each Class consists of Twenty-four Lectures, by the Professor of English Law, in each Collegiate Session of three years, and of Twenty-four Lectures by the Professor of Jurisprudence, in each course of the first two years. The Lectures are delivered after Michaelmas Law Term, in the month of December, and after Hilary Law Term, in the months of February and March. Five-sixths of the Lectures in each Course must be attended.

Students proceeding to the Irish Bar, if they be Graduates in Arts of the Queen's University, and have for two years attended the Lectures, and passed the Examinations of the Professors of Law in any of the Queen's Colleges. will be required to attend but for one year at the Lectures of the Professors of the King's Inns: provided, however, that such Students be admitted as Students of the King's Inns within one year after the completion of such legal course in the Queen's College.

Students proceeding to the Irish Bar, who are not Graduates in Arts of the Queen's University, but have for one year attended the Lectures of the Professors of Law in any of the Queen's Colleges, will be required to attend for two years at the Lectures of the Professors of the King's Inns.

Graduates, or Undergraduates, are excepted from the operation of the Benchers' rule requiring Law Students to pass an examination in the English Language and Literature, and the Latin Language.

With respect to Students for the English Bar, the Council of Legal Education may accept a Degree in Law granted by the Queen's University, as an equivalent for the Examination to be passed in any of the following subjects, viz.:—Roman Civil Law; the Law of Real and Personal Property; provided the Council is satisfied that the Student, before he obtained his Degree, passed a sufficient Examination in such subject or subjects.

Students preparing for the profession of Attorney or Solicitor in Ireland, can save two years of their apprenticeship by taking the Degree of B.A. or of LL.B., in the Queen's University.

Students intending to proceed, so as to entitle themselves to serve an apprenticeship of four years instead of five, under the Attorneys' and Solicitors' Act, Ireland, 1866, must enter their names with one of the Registrars of the Queen's Colleges of Cork, Belfast, or Galway, and pay the necessary College and Class Fees to the Bursar before the commencement of the Law Lectures in each Session. Such Students need not pass the Matriculation Examination, but must attend the Lectures, and pass the College Examinations prescribed for the first and second years, of the course of study for Candidates for the Diploma in Elementary Law.

SCHOLARSHIPS.

Subjects of Examination.

FIRST YEAR.

Examination by the Professor of Jurisprudence:—

Reddie's Inquiries in the Science of Law.
Adam Smith's Wealth of Nations—Book III.
Hallam's Middle Ages—Chap. 2 and 8.

Examination by the Professor of English Law:—

Williams—Principles of the Law of Real Property.

No. III. Faculty of Law.

SECOND YEAR.

By Professor of Jurisprudence.
The Lectures of the Professor in the First Year.
Ancient Law, by H. S. Maine.
The Chapters on Social Science in J. S. Mill's Logic—Book VI., Chap. 6, to end of the Book.
Austin's Jurisprudence, Vol. 1, 3rd Edition.

By Professor of English Law.
The Lectures of the Professor for the preceding year.
Smith—Manual of Equity Jurisprudence.
Williams—Principles of the Law of Personal Property.
Smith—On Contracts.

THIRD YEAR.

By Professor of Jurisprudence.
Austin's Jurisprudence, Vol. 2, 3rd Edition.
Sandar's Justinian, and the Lectures of the Professor, in the first and second year.

NOTE.—The following works, in addition to the text-books mentioned, should be referred to in connexion with the principal subjects discussed in the Lectures on Jurisprudence:—
Dumont's Bentham (translation by Hildreth), "Principles of Legislation," and 1st and 2nd parts of the "Principles of the Civil Code."
Stephens' "Criminal Law."
Spence's Equity Jurisprudence. Vol. I., Part I.
Mackenzie's Roman Law.

By Professor of English Law.
The Lectures of the Professor for the preceding years.
Smith—Leading cases on branches of the Law.
Storey—Equity Jurisprudence.

The Senior Law Scholarship will be awarded, by Examination, to the most distinguished Student who shall have proceeded in the Course of Arts to the Degree of A.B., and who shall have completed the Course of Legal Study prescribed to Candidates for the Degree of LL.B. in the Queen's University in Ireland.

Examination for the Senior Scholarship in Law.

The Lectures of the Professors and subjects appointed for Scholarship Examination in the preceding years.
Sugden—The Law of Vendors and Purchasers.
Furlong—Law of Landlord and Tenant.
Taylor—Treatise on the Law of Evidence.
Stephen—Treatise on the Principles of Pleading.
Stephen—Commentaries, Books V., VI.
Hallam—Constitutional History.
Broom's Constitutional Law.
Spence's Equity Jurisprudence, Vol. I., Part 1.

No. IV.—FACULTY OF MEDICINE.

No. IV. Faculty of Medicine.

DEGREES OF M.D. AND M.CH.*

Students who wish to obtain the Degree of M.D., or of M.Ch. in the Queen's University, must be matriculated Students of one of the Queen's Colleges, and must pursue the courses of study prescribed by the Senate of the University.

Medical Students may matriculate either at the General Matriculation Examination on 20*th October*, 1874, or at the Supplementary Examination held in the second or third week of *November*.

The following are the Regulations of the Senate concerning those Degrees:—

Each Candidate for the Degree of Doctor in Medicine or Master in Surgery is required—

1st—To have passed in one of the Colleges of the Queen's University the Entrance Examination in Arts, and to have been admitted a Matriculated Student of the University.

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* The regulations under which degrees in Surgery will be conferred on Candidates who graduated in Medicine before the year 1865, may be learned on application to the Secretary of the Queen's University.

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No. IV.
Faculty of Medicine.

2nd—To have attended in one of the Queen's Colleges, Lectures on one Modern Continental Language for six months, and Lectures on Natural Philosophy for six months.

3rd—To have also attended, in some one of the Queen's Colleges, at least two of the courses of Lectures marked with an asterisk. For the remainder of the courses, authenticated certificates will be received from the Professors or Lecturers in Universities, Colleges, or Schools, recognised by the Senate of the Queen's University in Ireland.

4th—To pass two University Examinations—the First University Examination, and the Degree Examination.

The Curriculum shall extend over at least four years, and shall be divided into periods of at least two years each.

Candidates are recommended to pass the Matriculation Examination prior to entering on the second period.

It is recommended that the first period shall comprise attendance on the following Courses of Medical Lectures:—

* Chemistry.
* Botany, with Herborizations for practical study, and Zoology.
* Anatomy and Physiology.
* Practical Anatomy.
* Materia Medica and Pharmacy.

And that the second period shall comprise attendance on the following Courses of Medical Lectures:—

Anatomy and Physiology (Second Course).
Practical Anatomy (Second Course).
* Theory and Practice of Surgery.
* Midwifery.
* Theory and Practice of Medicine.
* Medical Jurisprudence.

In addition to the above Courses of Lectures, Candidates shall have attended during either the first or second period—

A Modern Continental Language (in one of the Colleges of the University).
Experimental Physics (in one of the Colleges of the University).

Also, during the first period—

Practical Chemistry (in a recognised Laboratory).
Medico-Chirurgical Hospital (recognised by the Senate) containing at least sixty beds, together with the Clinical Lectures therein delivered, at least Two each Week—a Winter Session of Six Months.

And during the second period—

Practical Midwifery, at a recognised Midwifery Hospital, with the Clinical Lectures therein delivered—for a period of Three Months, in an Hospital containing not less than Thirty beds; or six Months, in an Hospital containing not less than Fifteen beds.
Medico-Chirurgical Hospital (recognised by the Senate) containing at least sixty beds, together with the Clinical Lectures therein delivered—Eighteen Months; including either three Winter Sessions of Six Months each, or two Winter Sessions of Six Months each, and two Summer Sessions of Three Months each.

Medical Examinations are held in June, and in September and October.

The June Examinations are Pass Examinations, and commence on the Tuesday following the Second Saturday in June.

The Honor Examinations commence on the last Tuesday in September, and are followed by Pass Examinations.

Each Candidate for Examination in June must forward to the Secretary, on or before the first of June, notice of his intention to offer himself as a Candidate along with his Certificates; and each Candidate for Examination in September or October must forward similar notice, along with his certificates.

Lectures.

The Medical Session was opened on Monday, 3rd November, 1873, and the Courses of Lectures commenced as under:—

Anatomy and Physiology.

Monday, 3rd of November, at One o'clock, and continued daily, except on Saturdays, at the same hour.

Practice of Medicine.

Monday, 3rd of November, at Three o'clock, and continued on Mondays, Wednesdays, and Fridays, at the same hour.

Practice of Surgery.

Tuesday, 4th November, at Four o'clock, and continued on Tuesdays and Thursdays, at Four o'clock, and Saturdays, at One o'clock.

Materia Medica.

Tuesday, 4th November, at Three o'clock, and continued on Tuesdays and Thursdays, at Three o'clock; and on Saturdays, at Twelve o'clock.

Medical Jurisprudence.

Tuesday, 4th November at One o'clock, and continued on Tuesdays and Thursdays, at the same hour, and on Saturdays at Two o'clock.

Midwifery.

Monday, 3rd November, at Four o'clock, and continued on Mondays, Wednesdays, and Fridays, at the same hour.

The Course of Practical Anatomy was conducted by the Professor of Anatomy and Physiology, assisted by Demonstrators.

The Anatomical Demonstrations

Commenced on 3rd of November, and were continued daily at Twelve o'clock, except Saturdays.

Chemistry.

Monday, Wednesday, and Friday, at Eleven o'clock.

Practical Chemistry.

Monday, Wednesday, and Friday, at Two o'clock. (See note, p. 21.)

Zoology and Botany.

Monday, Wednesday, and Friday, at Three o'clock.

Natural Philosophy.

Tuesdays and Thursdays.

Modern Languages.

Monday, Wednesday, and Friday.

The following Curriculum is recommended for all Medical Students:—

FIRST YEAR.

Anatomy and Physiology.
Chemistry.
French or German.
Natural Philosophy.
Zoology and Botany.

SECOND YEAR.

Anatomy and Physiology.
Materia Medica.
Practical Anatomy.
Practical Chemistry.

THIRD YEAR.

Surgery.
Midwifery.
Practical Anatomy.

FOURTH YEAR.

Practice of Medicine.
Medical Jurisprudence.

Note.—The 16th of November will be the last day for entering for the Six Months' Courses of Lectures in the above Curriculum. All the Lectures are recognised by the Queen's University in Ireland, by the Universities of London, Glasgow, Aberdeen, and St. Andrew's; the Colleges of Surgeons of Dublin, Edinburgh, and London; by the Apothecaries' Companies, by the Army, Navy, and East India Medical Boards, &c., &c.

Appendix A.

No. IV.
Faculty of Medicine.

TABLE OF FEES.

FIRST YEAR.

	£	s.	d.
Anatomy and Physiology,	3	0	0
French,	2	0	0
Natural Philosophy,	2	0	0
Natural History,	2	0	0
Chemistry,	2	0	0
College Fee,	0	10	0

SECOND YEAR.

	£	s.	d.
Anatomy and Physiology, if a Second Course,	2	0	0
Practical Anatomy,	3	0	0
Practical Chemistry,	3	0	0
Materia Medica,	2	0	0
College Fee,	0	5	0

THIRD YEAR.

	£	s.	d.
Practical Anatomy,	3	0	0
Midwifery,	2	0	0
Surgery,	2	0	0
College Fee,	0	5	0

FOURTH YEAR.

	£	s.	d.
Medical Jurisprudence,	2	0	0
Medicine,	2	0	0
College Fee,	0	5	0

HOSPITAL ATTENDANCE.

Clinical Lectures on Medicine and Surgery are delivered at the North and South Infirmaries, by the Physicians and Surgeons of those Institutions.

	£	s.	d.
Fee for twelve months,	8	8	0
Fee for six months,	5	5	0
Practical Pharmacy at the same Infirmaries:			
Fee for three months,	3	3	0
Clinical Midwifery at the Lying-in Hospital, with Practical Attendance upon Thirty Midwifery cases:			
Fee for six months,	3	3	0

Further information may be had from the Medical Officers at the Infirmaries.

SCHOLARSHIPS.

There are Eight Scholarships in the Faculty of Medicine, which are thus allotted:—

To the First Year—Two—One for Literature and one for Science.
,, Second do. Two.
,, Third do. Two.
,, Fourth do. Two.

SUBJECTS OF EXAMINATION.

Scholarships of First Year.

1. LITERARY SCHOLARSHIP.

The Greek Language:

Homer—The Iliad, Books I., II., III., IV., V., and VI.
Euripides—Phœnissæ.
Herodotus—The Second Book.
Xenophon—The Anabasis, Books I., II., III.
Lucian—Walker's Selections.
Greek Prose—Translation of short sentences from English into Greek.
For 1874, Herodotus was omitted, and the Fourth Book of the Anabasis added.

The Latin Language:

Virgil—First Six Books of the Æneid, the Georgics.
Horace—First Two Books of the Odes, the Satires, and the Epistles, Books I., II.
Cicero—De Senectute, De Amicitiâ.
Sallust—Conspiracy of Cataline and Jugurthine War.
Cæsar—The Gallic War, Books V., VI.
Latin Prose—Re-translations from English into Latin of portions of Cicero.
N.B.—The Examination in Greek and Latin was conducted partly *vivâ voce,* and partly by printed questions.

No. IV.
Faculty of Medicine.

The English Language:
Original Essays on subjects proposed by the Examiner. The Principles of English Grammar. The Laws of Etymology and Orthography. Craik's Outlines of the History of the English Language.]

History and Geography:
Grecian History to the Death of Alexander the Great.
Roman History to the Accession of Augustus.
Outlines of Ancient and Modern Geography.

2. SCIENCE SCHOLARSHIP.

Arithmetic:
Mensuration of Rectilineal Figures and of the Circle:

Algebra:
The Solution of Simple and Quadratic Equations, with one or more unknown quantities. Easy questions in the application of Algebra to Geometry. Arithmetical and Geometrical Progressions. The Nature of Logarithms.

Euclid:
Books I., II., III., and IV., with Deductions.

Trigonometry:
Definitions of the Sine, Tangent, &c., of an Angle. The easier analytical formulæ. The Solution of Plane Triangles with Demonstrations. Nature and use of the Tables.

Scholarship of the Second Year.

Anatomy and Physiology.
Chemistry.
General Physics.
Zoology and Botany.
The French Language.

Scholarship of the Third Year.

Anatomy and Physiology.
Practical Anatomy.
Materia Medica.
Practical Chemistry.

Scholarship of the Fourth Year.

Anatomy and Physiology.
Practical Anatomy.
Therapeutics.
Pathology and Morbid Anatomy.
Surgery.
Midwifery.

See Appendix No. I., p. 24, for the University Exhibitions and Prizes in the Faculty of Medicine.

No. V.—School of Engineering.

No. V.
School of Engineering.

Degree in Engineering.

To obtain the Degree in Civil Engineering, Students must matriculate in Engineering, complete the prescribed course in one of the Queen's Colleges, and pass the University Examinations. Of these there are two; the Preliminary Examinations at the commencement of the third Session, and the Final Examination in the following September.

Each Candidate for the Degree in Civil Engineering is required—

1. To have been admitted a Matriculated Student of the Queen's University in the Department of Civil Engineering.
2. To have studied in the Colleges of the Queen's University the Course herein prescribed.
3. To have passed the University Examinations herein prescribed.

The Course for the Degree in Civil Engineering

Shall usually extend over Three Sessions, and shall comprise attendance on the following Curriculum:—

FIRST SESSION.

Mathematics (First Course).
Chemistry.
Modern Languages.
Geometrical Drawing.
Office Work.
Mineralogy, Geology, and Physical Geography.

Appendix A.

No. V.
School of Engineering.

SECOND SESSION.

Mathematics (Second Course).
Experimental Physics.
Civil Engineering.
Office Work.
Field Work.

THIRD SESSION.

Natural Philosophy, applied.
Mathematical Physics.
Civil and Mechanical Engineering.
Office Work.
Field Work.
Engineering Excursions.

Attendance on these Courses shall in all cases be understood to include passing such Examinations as may be appointed by the College Council, as well as the catechetical parts of the Courses of the Lecture.

Engineering Students shall reside at their respective Colleges during at least the first two Terms of each Session, and can be exempted from residence during the third Term also, only by a special grace of the College Council.

The study of the Engineering Curriculum may be extended over more than three Sessions, on the recommendation of the College Council, and under such regulations as the Council shall impose. Some relaxation of the order in which the subjects shall be studied will also be admitted, on the recommendation of the Council.

Candidates will, on the special recommendation of the College Council, be admitted to the Degree after two years' residence instead of three, if their previous acquaintance with a sufficient group of the subjects above set down for study in the First and Second Session is deemed by the Council satisfactory. In such cases the Certificate of the Council will be accepted in lieu of attendances upon these Courses, but will not exempt Candidates from the University Examinations in them.

In order to obtain this Certificate, Students must have attended previously at least one Session in Arts, or one year in an Engineer's office. On making application to the Council, such Students will be allowed to present themselves, at the time of Matriculation, for examination in the subjects of any four of the eight Courses of Lectures of the first two years. On passing this Examination, they will be allowed to take rank at once as Students of the second year, and will then be required to attend those other four Courses of Lectures only, in the subjects of which they have not passed; but they will not be eligible for the Scholarship of that year.

The application to be admitted to this Examination must be lodged with the Registrar before the first day of the Session, and must state what are the four subjects in which the Students propose to offer themselves for Examination, and must be accompanied by a Certificate of the required attendance of one or more years in Arts or an Engineer's Office.

On passing the Sessional Examinations in the subjects of these four Courses of Lectures which they shall have attended as Students of the second year, they will be promoted to the rank of Students of the third year; and, on completing the regular Course of that year, will be furnished with the Certificate required by the Senate of the University.

The University Examinations shall extend to all the subjects of the above Curriculum. French will, in all cases, be required.

Candidates must present themselves before the close of their Collegiate Course for Examination in the following subjects, viz.:—Mathematics (*First Course*); Experimental Physics; Modern Languages; Geometrical Drawing (including Orthographic projection, Isometric projection, Descriptive Geometry, and Linear Perspective); Mathematics (*Second Course*); Mensuration, Levelling, and Mapping.

The final Examination shall extend to all the subjects of the Engineering Course, in which the Candidate shall not have previously passed. English Composition will form a part of each University Examination.

This Ordinance shall take effect from the first day of January, 1860; Students who shall have entered the Engineering Schools of the Colleges of Queen's

Appendix A.

No. V.
School of Engineering.

University previously, may proceed either under the present Ordinance, or under that hitherto in force.

Lectures.

The Lectures in Engineering commenced on Monday, 27th October, 1873.

The following Table shows the various Classes which are to be attended in each year, with the corresponding days and hours of Lecture, and the College and Class Fee payable by Engineering Students:—

	CLASS.	Terms.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Fees.		
									£	s.	d.
1st Session.	Mathematics (1st Course),	1, 2, 3	12	–	12	–	12	–	2	0	0
	Chemistry,	1, 2, 3	11	–	11	–	11	–	2	0	0
	Modern Languages,	1, 2, 3	2	–	2	–	2	–	2	0	0
	Geometrical Drawing,	1, 2, 3	10	–	10	–	10	–	2	0	0
	Office Work (10 A.M. to 2 P.M.)	1, 2, 3	–	10	–	10	–	10	2	0	0
	Mineralogy, Geology, and Physical Geography,	1, 2, 3	–	2	–	2	–	12	2	0	0
	College Fee,	–	–	–	–	–	–	–	0	10	0
2nd Session	Mathematics (2nd Course),	1, 2, 3	2	–	2	–	2	–	2	0	0
	Experimental Physics,	1, 2, 3	–	–	–	–	–	–	2	0	0
	Civil Engineering,	1, 2, 3	–	10	–	10	–	10	2	0	0
	*Office Work (10 A.M. to 2 P.M.)	1, 2, 3	–	10	–	10	–	10	2	0	0
	College Fee,	–	–	–	–	–	–	–	0	5	0
3rd Session.	Natural Philosophy, applied,	1, 2, 3	–	2	–	2	–	–	2	0	0
	Mathematical Physics,	1, 2, 3	1	–	1	1	1	–	2	0	0
	Civil and Mechanical Engineering,	1, 2, 3	12	–	12	–	12	–	2	0	0
	*Office Work (10 A.M. to 2 P.M.)	1, 2, 3	–	10	–	10	–	10	2	0	0
	College Fee,	–	–	–	–	–	–	–	0	5	0

* For Students who have attended this Course in their first year, the Fee is £1.

Outline of the Course of Lectures on Civil Engineering.

Professor, Alexander Jack, M.A.

FIRST YEAR.

Monday, Wednesday, and Friday.

Subject of Lectures—Orthographic Projection; Descriptive Geometry; Shadows; Isometric Projection; Perspective; Geometry of the Oblique Bridge; Principles of Architecture.

Text Books—Hall's Descriptive Geometry; Engineer and Machinist's Drawing Book; Rickman's Architecture; Buck on Oblique Bridges.

SECOND YEAR.

Tuesday, Thursday, and Saturday.

Subject of Lectures—Surveying and Levelling.

Text Books—Rankine's Civil Engineering; Cotton's Manual of Railway Engineering; Williams' Geodesy.

THIRD YEAR.

Monday, Wednesday, and Friday.

Materials used in Construction; Principles of Construction of Bridges, Roads, Railways, Canals; Hydraulic Engineering; Strength of Materials; Principles of the Construction of the different Machines employed by the Engineer.

DRAWING OFFICE.

Attended by all the Classes—Tuesday, Thursday, and Saturday.

The First Year's Class are chiefly employed in drawing the problems given at lectures, and a few easy examples of their applications. The Second and Third Years' Classes, in making working drawings of examples of the subjects of lectures, and in Mapping.

Practical Instruction in the Field in the use of Surveying Instruments will be given during the Session.

For an outline of the other courses of lectures in the above table to be attended by Engineering Students, see Appendix No. II., p. 30, et seq.

Appendix A.

No. V. School of Engineering.

SCHOLARSHIPS.

In the School of Engineering there are five Scholarships, two of which are appropriated to Students of the first year, two to those of the second, and one to those of the third. (See also p. 22.)

SUBJECTS OF EXAMINATION.

The Subjects of Examination for the Engineering Scholarships are as follows:—

Subjects of Examination for Engineering Scholarships of the First Year.

Arithmetic:

Mensuration of Rectilineal Figures and of the Circle:

Algebra:

The Solution of Simple and Quadratic Equations, with one or more unknown qualities. Easy questions in the application of Algebra to Geometry. Arithmetical and Geometrical Progressions. The Nature of Logarithms.

Euclid:

Books I., II., III., and IV., with Deductions.

Trigonometry:

Definition of the Sine, Tangent, &c., of an Angle. The easier analytical formulæ. The Solution of Plane Triangles with Demonstrations. Nature and use of the Tables.

Subjects of Examination for Engineering Scholarships of the Second Year.

Mathematics:

The same as for Science Scholarships in Arts of the Second Year, except that Spherical Trigonometry will be substituted for Analytical Geometry.

French:

Demogeot—Histoire de la Littérature Française.
Translation from English into French.

Chemistry:

Laws of Combination and Affinity. Preparation and Properties of the Chief Organic Substances. Metallurgic Operations. Mortars and Cements.

Geometrical Drawing:

Descriptive Geometry—Orthographic Projection—Isometric Projection—Perspective—Geometry of Oblique Bridge.

Subjects of Examination for Engineering Scholarships of the Third Year.

Mathematics:

Algebra—Theory of Equations and Methods of Approximation. Elimination. Summation of Series. Binomial and Exponential Theorems. Scales of Notation, &c.

Trigonometry—Plane and Spherical, with Astronomical applications.

Analytical Geometry, and Geometrical Conic Sections.

Differential Calculus—Involving demonstrations of the rules for differentiating Algebraic, Circular, and Exponential Functions, founded upon a clear statement of the nature of Limits and Definition of a Differential coefficient. Taylor's and Maclaurin's Theorems. Maxima and Minima. Criteria of the same, with proofs, Equation of Tangent, Normal, Evolute, &c.

Integral Calculus, including more particularly Rational Fractions, Binomial Differentials, Areas of Curves, Rectification of Curves, Cubature of Solids of Revolution.

Natural Philosophy:

Newth's Mechanics.
Ganôt—Traite de Physique—Books VI., VII.,VIII., IX.

Geology and Mineralogy:

Civil Engineering:

Instruments used by the Civil Engineer. Their adjustments and use. Surveying. Levelling.

See Appendix No. I., p. 24, for the University Exhibitions in Engineering.

APPENDIX B.

Appendix B

List of Successful Candidates for Degrees, &c.

No. VI.—UNIVERSITY DEGREES, DIPLOMAS, AND HONORS OBTAINED BY STUDENTS OF QUEEN'S COLLEGE, CORK, AT THE COMMENCEMENTS IN JUNE AND OCTOBER, 1873.

FACULTY OF ARTS.

DEGREE OF M.A.

James J. Hynes,	First Class in Ancient Classics.
Robert Eccles,	Second Class in Experimental Physics.
Henry C. Heazle,	Second Class in Ancient Classics.
Christopher Pearson,	Third Class in Natural Science.

DEGREE OF B.A.

James J. O'Donoghue,	First Class in Ancient Classics.
John L. Aherne,	Third Class in Ancient Classics.
Daniel Croly,	Third Class in Ancient Classics.
Edward Horan,	Third Class in Ancient Classics.
John Wilson,	Third Class in Mathematical Science

Passed.

Robert D. Donaldson.
Edward S. M'Nab.
William H. Thornhill

FIRST UNIVERSITY EXAMINATION IN ARTS.

John Ryan,	Second Class.
William Stoops,	Third Class.

Passed.

Charles W. Allison.
Thomas G. Atkins.
Joseph J. Healy.
Charles M. Johnston.
John Molony.
Horace Townsend.
William Hennessy.
Edward White.

FACULTY OF LAW.

DEGREE OF LL.B.

Henry Thynne, B.A.

FACULTY OF MEDICINE.

DEGREE OF M.D.

Aurelius Victor Maybury, First Class.

Passed.

Ringrose Atkins, M.A.
Robert T. Beamish.
John L. Corbett.
Henry Corby, B.A.
John E. V. Foss.
Thomas J. Gallwey.
Benjamin R. Jagoe.
William G. Kingston
Richard R. Leader.
Charles J. M'Cartie, B.A.
James Moran.
Edward J. Murtagh.
William Pearson.
Charles M. Plowman.
Caleb K. Powell.
Edward Shipsey.
Carew C. H. Smyth.
Michael Sweetnam.

DEGREE OF MASTER IN SURGERY (M. CH.)

George W. F. Armstrong, M.D.
Ringrose Atkins, M.A., M.D.
Philip L. Benson, M.A., M.D.
John L. Corbett, M.D.
Henry Corby, B.A., M.D.
Thomas J. Gallwey, M.D.
Benjamin R. Jagoe, M.D.
William G. Kingston, M.D.
Richard R. Leader, M.D.
Aurelius V. Maybury, M.D.
William Pearson, M.D.
Charles M. Plowman, M.D.
Caleb K. Powell, M.D.
Edward Shipsey, M.D.
Carew C. H. Smyth, M.D.
Michael Sweetnam, M.D.
John Wheeler, M.D.

Appendix B.

List of successful Candidates for Degrees, &c.

DIPLOMA IN MIDWIFERY.

George W. F. Armstrong.
Ringrose Atkins, M.A.
John L. Corbett.
Thomas J. Gallwey.
William G. Kingston.
Richard R. Leader.
Aurelius V. Maybury.
Carew C. H. Smyth.
Michael Sweetnam.
John Wheeler.

FIRST UNIVERSITY EXAMINATION IN MEDICINE.

Passed.

James F. Allen.
Henry B. Beamish.
John L. Blackall.
William A. Burgess.
Jeremiah L. Curtin.
William Gleeson.
Henry Harley.
John Holmes.
William Jennings.
Percy. H. Johnston, B.A.
George Laffan.
Alexis M'Auliffe, B.A.
Patrick M'Donnell.
Aurelius V. Maybury.
Alfred H. Miller.
John Mulrenan.
James O'Connell.
Daniel J. O'Sullivan.
Thomas D. Popham.
Christopher Pearson, M.A.
William R. Ryan.
Cæsar D. Sherrard.
James Tidbury.
Thomas G. Walker.
Francis G. Wright.

SCHOOL OF CIVIL ENGINEERING.

DEGREE OF BACHELOR OF ENGINEERING (B.E.)

William J. Hall.
John Heron.

FIRST UNIVERSITY EXAMINATION IN ENGINEERING.

William Kingston,	First Class.
John Duggan,	Third Class.
William V. Miller,	Passed.

No. VII.—SCHOLARSHIP EXAMINATIONS.

FACULTY OF ARTS.

Senior Scholarships and Exhibitions.

ANCIENT CLASSICS,	James J. O'Donoghue,	(Scholarship.)
	John Aherne,	(Exhibition.)
MODERN LANGUAGES,	James J. Hynes,	(Scholarship.)
	Edward Horan,	(Exhibitions.)
	Robert Donaldson,	
MATHEMATICS,	John Wilson.	
CHEMISTRY,	Robert Eccles.	
NATURAL HISTORY,	Christopher Pearson.	
MENTAL AND SOCIAL SCIENCE,	Daniel Croly.	

Second and Third Year's Scholarships.

LITERATURE.
- Denis Hannigan.
- Richard Belton.
- Walter Johnson.
- Hamilton Benson.
- William Barry.

SCIENCE.
- Annesley Somerville.
- Robert Belcher.
- Samuel Lombard Brown.
- William Kelly.
- O'Byrne Crowe.

First Year's Scholarships.

LITERATURE.
- William Corker.
- Michael Keating.
- Thomas Farrington.
- Edmond Wall.
- Edwin S. Donovan.

SCIENCE.
- John C. Crowe.
- Edward A. Warren.
- William A. Cummin.
- Charles G. Pearson.
- Robert Hyde.

FACULTY OF LAW.

Senior Scholarship.
Henry Thynne.

Third Year's Scholarship.
Henry H. Beattie.

Appendix B.

List of successful Candidates for Degrees, &c.

FACULTY OF MEDICINE.

Fourth Year's Scholarships and Exhibitions.

Timothy Mullane, James Crofts,	(Scholarships.)	William Le Grnud, Percy Johnston,	(Exhibitions.)

Third Year's Scholarships and Exhibitions.

William Jennings, Thomas G. Walker,	(Scholarships.)	Thomas D. Popham, William Gleeson, Charles Good,	(Exhibitions.)
Justin Donovan,	(Exhibition.)		

Second Year's Scholarships and Exhibitions.

John Welply, Jephson J. Connell,	(Scholarships.)	Richard Starkie, Daniel Wilson,	(Exhibitions.)

First Year's Scholarships and Exhibitions.

LITERATURE.		SCIENCE.	
John E. Walshe,	(Scholarship.)	Michael M'Carthy,	(Scholarship.)
Martin Howard,	(Exhibition.)	John R. Galvin, John G. Saudiford,	(Exhibitions.)

SCHOOL OF ENGINEERING.

Third Year's Scholarship.

William Kingston.

Second Year's Scholarship.

Daniel Connery.

First Year's Scholarship.

Richard Campion.	Henry L. Roche.

No. VIII.—SESSIONAL EXAMINATIONS.

List of the Students who obtained Honours or Prizes at the Sessional Examinations.

PRIZES AND CERTIFICATES AWARDED FOR THE SESSION 1873–4.

FACULTY OF ARTS.

First Year.

GREEK,	Equal,	1. John H. Belcher, 2. Robert Hyde,	Prize.
		3. Samuel Lombard Brown,	Certificate.
		4. Thomas H. Croker,	"
LATIN,		1. John P. Sullivan,	Prize.
	Equal,	2. Morgan M'Sweeny, 3. John C. Crowe,	"
		4. John H. Belcher,	Certificate.
ENGLISH LANGUAGE,		1. William Corker,	Prize.
	Equal,	2. John P. Sullivan, 3. Edwin S. Donovan,	"
		4. Thomas Farrington,	"
FRENCH,		1. Thomas Farrington,	Prize.
		2. John P. Sullivan,	"
		3. Michael Keating,	Certificate.
MATHEMATICS,		1. John C. Crowe,	Prize.
		2. Thomas Farrington,	"

Second Year.

GREEK,		1. Denis Hannigan,	Prize.
	Equal,	2. William Corker, 3. Michael Keating,	"
		4. Hamilton Benson,	Certificate.
		5. Annesley Somerville,	"
		6. William Gardiner,	"

Appendix B.

List of the Students who obtained Honors or Prizes at the Sessional Examinations.

LATIN,	Equal,	1. Hamilton Benson,	Prize.
	Equal,	2. Michael Keating,	Prize.
		3. Denis Hanigan,	Certificate.
		4. Richard Belton,	”
		5. Edmund Donovan,	* ”
		6. William Corker,	* ”
		7. Thomas Farrington,	* ”
FRENCH,		1. Thomas H. Corker,	”
LOGIC,		1. Samuel Lombard Brown,	Prize.
		2. Annesley Somerville,	Certificate.
MATHEMATICS,		1. Annesley Somerville,	Prize.
		2. Robert N. Belcher,	”
NATURAL PHILOSOPHY,		1. Annesley Somerville,	”

Third Year.

GREEK,		1. John Ryan,	Prize.
		2. Daniel F. Barry,	Certificate
LATIN,		1. John Ryan,	Prize.
		2. Daniel F. Barry,	Certificate.
ENGLISH LITERATURE,	Equal,	1. John Ryan,	Prize.
	Equal,	2. Joseph J. Healy,	Prize.
HISTORY,		1. Thomas G. Atkins,	”
		2. Joseph J. Healy,	”
METAPHYSICS,		1. Thomas G. Atkins,	”
		2. William Stoops,	Certificate.
MATHEMATICS,		1. William Stoops,	Prize.
CHEMISTRY,		1. Charles Allison,	”
MINERALOGY AND GEOLOGY,		1. John Moloney,	”

FACULTY OF MEDICINE.

First Year.

FRENCH,		1. Michael M'Carthy,	Prize.
		2. James Hanrahan,	”
		3. John Carmody,	Certificate.
NATURAL PHILOSOPHY,		1. Jeremiah Mullane,	Prize.
		2. Alfred Miller,	”
		3. Peter Cullinane,	Certificate.
CHEMISTRY,		1. Jeremiah Mullane,	Prize.
ANATOMY AND PHYSIOLOGY,		1. Michael M'Carthy,	”
		2. John F. Tuohy,	”
		3. Jeremiah Mullane,	”
		4. Peter Cullinane,	Certificate.

Second Year.

PRACTICAL CHEMISTRY,		1. Hugh Donovan,	Prize.
		2. Francis H. Murphy,	”
	Equal,	3. John Welply,	”
	Equal,	4. Richard Jennings,	”
MATERIA MEDICA,		1. John J. Welply,	”
	Equal,	2. Richard Starkie,	”
	Equal,	3. Daniel Wilson,	”
	Equal,	4. Francis H. Murphy,	”
ANATOMY AND PHYSIOLOGY,		1. John Welply,	”
		2. Jephson J. Connell,	”
		3. Richard Starkie,	”
PRACTICAL ANATOMY,		1. John J. Welply,	”
		2. Daniel Wilson,	”
		3. Francis H. Murphy,	”
		4. Richard Jennings,	Certificate.

*First Year's Students

Appendix B

List of the Students who obtained Honors or Prizes at the Sessional Examinations.

Third Year.

PRACTICAL ANATOMY,	1. William Jennings, 2. Thomas G. Walker, 3. William C. Carmody,	Prize. ,, ,,
MIDWIFERY,	1. Edmund S. Bricknell, 2. William Jennings, 3. Thomas F. Popham, 4. George Laffan,	Prize. ,, Certificate. ,,
SURGERY,	1. Thomas T. Walker, 2. William Jennings, 3. Thomas F. Popham,	Prize. ,, Certificate.

Fourth Year.

MEDICINE,	1. Timothy Mullane, 2. Michael R. Ryan, 3. William Le Grand, 4. Ludlow F. Colthurst,	Prize. ,, Certificate. ,,
MEDICAL JURISPRUDENCE, Equal,	1. Edmund S. Bricknell, 2. William Le Grand, 3. Timothy Mullane, 4. Percy Johnston,	Prize. ,, ,, ,,

FACULTY OF LAW.

Second Year.

CIVIL LAW,	1. Francis M'Carthy O'Connor,	Prize.
ENGLISH LAW,	1. Francis M'Carthy O'Connor,	,,

SCHOOL OF ENGINEERING.

First Year.

FRENCH,	1. John Moloney, 2. William O'Ryan,	Prize. Certificate.
MATHEMATICS,	1. Richard Campion,	Prize.

Second Year.

MATHEMATICS,	1. Daniel Connery,	Prize.
EXPERIMENTAL PHYSICS,	1. Daniel Connery,	,,
ENGINEERING,	1. Daniel Connery,	,,
OFFICE WORK,	1. Christopher O'Sullivan,	,,

Third Year.

APPLIED MECHANICS,	1. William Kingston,	Prize.

No. IX.

Subjects Lectured on, &c.

TABLE CONTAINING THE NAMES OF THE SEVERAL SUBJECTS LECTURED UPON DURING THE SESSION OF 1873–74, THE NUMBER OF LECTURES GIVEN ON EACH SUBJECT, AND THE TOTAL NUMBER OF STUDENTS ATTENDING THE CLASSES IN EACH SUBJECT.

Subject.	No. of Lectures on each Subject.	Total No. of Students attending the Classes in each Subject.
Greek,	223	35
Latin,	209	30
English Language,	22	19
,, Literature,	41	10
History,	37	3

AppendixB

Subjects Lectured on, &c.

Subject.	No. of Lectures on each Subject.	Total No. of Students attending the Classes in each Subject.
French,	215	70
Logic,	32	14
Metaphysics,	53	4
Political Economy,	37	3
Mathematics,	217	39
Natural Philosophy,	343	87
Chemistry, Theoretical,	68	54
,, Practical,	29	58
Geology and Mineralogy,	60	8
Natural History, Zoology, and Botany,	70	53
English Law,	72	5
Civil Law,	48	4
Anatomy and Physiology,	107	100
„ Practical,	103	95
Materia Medica,	64	48
Medicine,	60	38
Midwifery,	59	42
Surgery,	71	43
Medical Jurisprudence,	36	38
Engineering,	278	16

AppendixC.

Reports of Vice-President and Professors.

APPENDIX C.

No. X.—Reports of Vice-President and Professors for the Session, 1873–1874.

Form of Circular sent to each Professor.

Return to be filled up by the Professor of , and to be returned to the Registrar, so filled up, for the official information of the President, on or before the , being for the Collegiate Session

A.—As to the Course or Courses of lectures given by the Professor. 1st. Duration and extent of the Course; number of Terms. 2nd. Number of weeks of Lectures in each Term. 3rd. Number of Lectures weekly, and days and hours of Lectures.

B.—The description or title of the Course or Courses of Lectures delivered, and a general abstract of the subjects of instruction contained in the Course, and the title of the Text-books recommended.

C.—Whether the Lectures are illustrated by reference to maps, diagrams, specimens, or experiments; and a general notice of the kind of illustrations used.

D.—Whether any method of Tutorial, or other special instruction, is employed, as by setting out portions of Text-books for lessons, by themes, or exercises in composition, or problems; and whether Special Class Examinations are held, and at what time; or whether Herborization Excursions, or Field Exercises, are given.

E.—What faculties or division of Students are those attending Courses of Lectures of the Professors making the return.

F.—The number of students attending each Course—distinguishing Matriculated and Non-Matriculated Students; and the general regularity of attendance.

G.—The general conduct of Students at the Professor's Lectures; and the general state of discipline as regards the Professor's Classes.

H.—The general condition of the department of which the Professor

Appendix C.
Reports of Vice-President and Professors.

has charge, as to supplies, fitments, cleanliness, and accommodation, for the purposes of instruction.

The Professor, in making the above returns, is requested to mark the answers with the letter designating the portion of the form of return, as above, to which each answer refers.

Signed, by order of the President,
R. J. Kenny, *Registrar.*

Report of the Vice-President.

A.—The different departments of the College were in a satisfactory state.

B.—The order and discipline in the College were good, no instance of serious breach of discipline having come to my knowledge.

John Ryall, *Vice-President.*

May 23, 1874.

Faculty of Arts.

Report of the Professor of Greek.

A.—1. The course extended over three terms. 2. The first term contained seven weeks of lecture; the second term contained eleven weeks of lecture; the third term contained six weeks of lecture. 3. *Ten* lectures given weekly between the hours of 9 and 11 o'clock, A.M., on every day of the week except Saturday.

B.—The course of Greek Language and Literature:—The students were divided into three classes, according to their collegiate standing and proficiency; that containing the more advanced students receiving two lectures in the week, the other two four each. The authors studied in the several classes were Aristophanes, Thucydides, Plato, Homer, Euripides, Demosthenes, and Xenophon.

C.—The lectures were illustrated by maps and casts from the antique, on the walls of the lecture-room.

D.—The students prepared at home portions of the authors read, in which they were examined by the Professor. Exercises in prose and verse composition were required.

E.—Exclusively to the Faculty of Arts.

F.—The number of students attending the course, in the three classes, was thirty-five, of whom *one* was non-matriculated; the rest matriculated.

G.—The general conduct of the students at lecture and the state of discipline were quite satisfactory.

H.—Quite sufficient.

John Ryall.

May 23, 1874.

Report of the Professor of Latin.

A.—The course extended through three terms. First term six weeks; second term eleven weeks; third term five weeks. Junior class four lectures weekly; senior class, three lectures weekly; third year's class, two lectures weekly.

B.—The Latin Language. Text-books of lectures.—Junior class: Tacitus, part of the Germania; Horace, Odes, part of Book III. Senior class: Juvenal, Satires, IV., V., and VII.; Cicero, Ad Familiares, part of Book II. and part of Book III. Third year's class: Tacitus, Annals, Book V., and part of Book VI.; Plautus, part of the Trinummus.

Appendix C.
Reports of the Professors.

C.—The lectures were illustrated by references to the Art collections belonging to the College.

D.—The students prepared a portion of the text-book for each lecture. They also wrote Latin exercises in prose and verse.

E.—Students in Arts.

F.—Thirty—twenty-nine matriculated, one non-matriculated.

G.—Satisfactory.

H.—Satisfactory.

B. Lewis.

Report of the Professor of History and English Literature.

A.—First. (*a.*) *History.*—Ordinary course, from 31st October, 1873, to March 20th, 1874; two terms. Special courses (for Cooper's Hill College and Direct Commissions) from November, 1873, to March 28th, 1874; two terms. (*b.*) *English Literature.*—Ordinary course, from 30th of October, 1873, to March 21st, 1874; two terms. Special courses, from November, 1873, to March 28th, 1874; two terms. (*c.*) *The English Language and English Literature.*—Ordinary course, from January 6th, 1874, to March 21st, 1874; one term.

Second. (*a.*) *History.*—Ordinary course: First term, about eight weeks. Second term, about eight weeks. (N.B.—The Professor was absent for nearly three weeks, owing to illness.) Special courses: First term, three or four weeks. Second term, eight or nine weeks. (*b.*) *English Literature.*—Ordinary course: First term, about eight weeks. Second term, about eight weeks. (N.B.—The Professor was absent for nearly three weeks, owing to illness.) Special courses: First term, three or four weeks. Second term, eight or nine weeks. (*c.*) *The English Language and English Literature.*—Ordinary course: Second term, about eight weeks (usual number of weeks about eleven).

Third. (*a.*) *History.*—Ordinary course, three; Mondays, Wednesdays, and Fridays, from 12 to 1 o'clock. Special courses, three, four, or five; days and hours irregular to suit convenience of students attending. (*b.*) *English Literature.*—Ordinary course three; days and hours—Tuesdays and Thursdays, from 12 to 1 o'clock; Saturdays, from 11 to 12 o'clock. Special courses, three, four, or five; days and hours irregular to suit convenience of students attending. (*c.*) *The English Language and English Literature.*—Ordinary courses, three; Tuesdays and Thursdays, from 11 to 12 o'clock; Saturdays, from 10 to 11 o'clock.

B. (*a.*) *History.*—Ordinary course: The History of the Middle Ages. Special course: Portions of English History appointed for the Cooper's Hill College Examination. (*b.*) *English Literature.*—Ordinary course: The History of English Literature to the death of Milton, with special lectures on selected works of Chaucer, Spenser, Shakespeare, and Milton. Books recommended for reference—Morley's "First Sketch"; Craik's "English Language and Literature"; Hallam, "Literary History of Europe"; Taine, "English Literature"; Shaw's "Manual." Special Course: Instructions on the subjects appointed for the Cooper's Hill College and Direct Commissions Examinations. (*c.*) *The English Language and English Literature.*—Ordinary course. 1. Language: The History of the English Language, with special lessons in Anglo-Saxon Grammar and the English of Chaucer; instruction in the principles of English Composition. 2. English Literature: A sketch of its history to the death of Chaucer. Text-books: Morris's "Outlines of English Accidence" and "Introduction to Chaucer."

C.—The lectures in History are illustrated by constant reference to maps.

Appendix C.

Reports of the Professors.

D.—(*a.*) *English Literature.*—Critical Essays required of the students, and examinations in the matter of the lectures held from time to time. (*b*) *The English Language.*—Portions of Morris's "Outlines of English Accidence" and "Introduction to Chaucer" set occasionally as lessons. Paraphrases, Metrical Analyses, Essays, required from time to time.

E.—(*a.*) Faculty of Arts. (*b.*) Faculty of Engineering.

F.—(*a*). *History.*—Ordinary courses, three. Special courses, two. (*b.*) *English Literature.*—Ordinary courses, eight. Special, two. (*c.*) *The English Language and English Literature.*—Ordinary course. 19 students in the first year class.

G.—(*a.*) Good. (*b.*) Good.

H. Modern map to hang on walls of lecture-room much needed.

GEORGE F. ARMSTRONG.

March 24, 1874.

REPORT of the PROFESSOR of MODERN LANGUAGES.

A.—1. The duration of the courses was of three terms. 2. The first term comprised eight weeks, the second thirteen weeks, and the third seven weeks. 3. The lectures took place three times weekly, from twelve to three.

B.—There were during the Session three classes of French—First, the medical French, with "L'année Scientifique" of Figuier for text-book; second, the senior French (arts and engineering); and third, the junior French (arts and engineering). The text-books of both were—"Histoire de la Littérature française," par Demogeot, and "Textes de la Littérature française," by the same.

C.—These classes do not require any illustrations, &c.

D.—The tutorial method is blended with the professorial, as portions of the text-books are to be prepared, translations and compositions given weekly, and weekly lectures are delivered on the syntax, comparative grammar and literature.

E.—The students belong to the Faculties of Medicine and Arts and to the Engineering School.

F.—The number of students in the medical class was 45; in the senior class, 20; and in the junior class, 5.

G.—The general conduct of the students has been excellent during the whole session.

H.—The general condition of the rooms, fitments, as well as the cleanliness, have been most satisfactory.

R. DE VERICOUR.

REPORT of the PROFESSOR of LOGIC and METAPHYSICS.

A.—On Logic and Metaphysics.—1. Logic, one term; Metaphysics, two terms. 2. First term, eight weeks; second term, eleven. 3. Logic, Tuesdays and Thursdays at eleven, Saturdays at nine o'clock. Metaphysics, Tuesdays and Thursdays at one o'clock, Saturdays at ten o'clock.

B.—Logic, Deductive and Inductive—Aldrich and Fowler, parts of Mill, Baynes, Thompson, and Bain. Metaphysics: History of Philosophy and Psychology; History of Philosophy of the University of France.

C.—No illustrations are used except such as are drawn or written on the board during the course of the lectures.

D.—Both the professorial and tutorial systems are used.

Appendix C.

Reports of the Professors.

E.—Logic, second year's students in Arts; Metaphysics, third year's students in Arts.

F.—Logic, 15; Metaphysics, 4. All matriculated; attendance very satisfactory.

G.—Conduct of students in class-rooms very good.

H.—Satisfactory.

G. S. Read.

Report of Professor of Mathematics.

A.—Three courses of lectures were delivered during the Session to students of the first, second, and third years respectively. The lectures extended over three terms.

These lectures were delivered respectively at the hours of twelve, one, and two o'clock, each lecture occupying one hour.

The days of lecture were Monday, Wednesday, and Friday.

B.—Subjects of lecture, &c.:

SUBJECTS.	TEXT BOOKS.
(First Year.)	
Arithmetic, ...	Colenso's or Barnard Smith's.
Euclid and Geometry, ...	Pott's or Todhunter's Edition, and Wilson's "Elementary Geometry."
Algebra, ...	References to Todhunter's "Algebra," and the "Algebra for Beginners" by the same author.
Trigonometry (Plane), ...	References to Todhunter's or Snowball's "Trigonometry."
(Second Year.)	
Trigonometry (Spherical and Analytical), .	References to Todhunter's text-book.
Theory of Equations, ...	Do.
Differential Calculus, ...	Do., and to Williamson's "Differential Calculus."
Integral Calculus, ...	References to Todhunter's text-book.
Analytical Geometry, ...	Do., and to Salmon's "Conic Sections."
(Third Year.)	
Geometry of Three Dimensions, . . .	Salmon's, Frost and Wolstenholme's, or Aldis' "Solid Geometry."
Differential Equations, ...	Boole's "Differential Equations."
Calculus of Variations.	

C.—No *special* illustrations.

D.—Problems set at each lecture, and repeated oral and written examinations during the Session, as course suggested.

E.—Students belonged entirely to Faculty of Arts (including Engineering).

There attended lectures of first year 24 matriculated and 1 non-matriculated students; second year—13 matriculated, and no non-matriculated students; third year—1 matriculated and no non-matriculated students.

The attendance was only moderately regular.

G.—The conduct of students was excellent.

H.—Condition of department good, except that it is most desirable that the lecture-room should be heated with hot water or air pipes; the present arrangement by means of a stove is unwholesome.

C. Niven.

June 2, 1874.

Report of the Professor of Natural Philosophy.

A.—1. Three terms. 2. In first term, seven weeks; in second, eleven weeks; in third, six weeks.

B.—Two general courses in Physics, including the Elements of Mathematical and Experimental Physics. One course of Mathematical Physics (Honor). One course of Mathematical Physics (Engineering). One course of Applied Natural Philosophy (Engineering). One course of Physics (Honor). Text books recommended—In Experimental Physics, Ganôt, "Traité de Physique," and Deschanel's "Natural Philosophy." In Mathematical Physics, Newth's "Mechanics," Todhunter's "Statics," Tait and Steele's "Dynamics," Parkinson's "Optics," Brinkley's "Astronomy," Godfrey's "Astronomy."

C. D.—The lectures in Experimental Science were illustrated by experiments. In Mathematical Physics exercises in problems were given to the students.

E.—Junior Physics by Medical students of first year; Senior by Arts and Engineering students of second year. Honor lectures by Arts students of third year. Mathematical Physics and Applied Natural Philosophy by Engineering students of third year.

F.—Junior Physics, 51; Senior, 23; Mathematical Physics (Honor), 2; Mathematical Physics (Engineering), 3; Applied Mechanics, 4; Experimental Physics (Honor), 5.

The attendance in all the classes was regular.

G.—The conduct of the students was uniformly good.

H.—A Physical Laboratory is much needed for the purpose of affording the more advanced students practical instruction in Experimental Science.

May 23, 1874. John England.

Report of the Professor of Geology and Mineralogy.

A.—The course of lectures given by the Professor extended over the first and second terms of the session, being eight weeks in the first and twelve weeks in the second term, the number of lectures delivered each week being three; the days and hours of lecture being Tuesdays and Thursdays from 2 to 3, P.M., and Saturdays from 12 to 1; the total number of lectures given being 60.

B.—The course of lectures included Geology, Palæontology, Physical Geography and Mineralogy. The text-books recommended were—Lyell's "Students Elements of Geology," Juke's "Manual of Geology," Lyell's "Principles of Geology," Nicholson's "Palæontology," Herschell's "Physical Geography," Somerville's "Physical Geography," and Nicol's "Elements of Mineralogy."

C.—The illustrations used in connexion with the course of lectures consisted of maps, diagrams, sections, specimens, and models.

D.—The method of instruction was professorial, and during the latter portion of the course excursions were made for the purpose of giving practical instruction in connexion with Geology and Palæontology.

E.—The students attending the course consisted of third year's Arts and first year's Engineering students.

F.—The number of students attending the course was eight, the whole being matriculated students, and the attendance generally good.

G.—The conduct of the students in the lecture-room was such as in every respect to merit the Professor's approval, and the discipline very satisfactory.

H.—As regards supplies, fitments, cleanliness, and accommodation, these were, in all respects, such as the Professor could require.

March 21, 1874. Robert Harkness.

Appendix C.

Reports of the Professors.

REPORT of the PROFESSOR of NATURAL HISTORY.

A.—One course on Zoölogy and Botany. 1. The course consisted of 70 lectures, and extended over 3 terms. 2. The first term included 7, the second, 12, and the third, 5 weeks of lectures. 3. Lectures were delivered on Monday, Wednesday, and Friday.

B.—The course included lectures on the principles of Zoölogy and Botany, with special reference to the structure and classification of plants and animals. In Zoölogy the text-books of Huxley and Rolleston were recommended; in Botany, those of Henfrey, Hooker, and Oliver.

C.—Specimens and diagrams were used to illustrate the lectures. There were Herborizations during the third term.

D.—The professorial mode of teaching was employed.

E.—Seven students of the third year in Arts, 36 of the first year in Medicine, and 10 non-matriculated students were present.

F.—Seventeen students attended diligently, 35 duly; 1 was disqualified for insufficient attendance.

G.—The conduct of the students was good.

H.—The department of Natural History has long wanted funds for the purchase of many needful specimens, diagrams, books, and other educational apparatus. The Museum is badly lighted, and is not sufficiently heated. A private room, with means for affording higher teaching to advanced students, is still a desideratum.

J. REAY GREENE.

FACULTY OF LAW.

REPORT of the PROFESSORS of JURISPRUDENCE and POLITICAL ECONOMY.

A.—Political Economy, 2 terms, 37 lectures. Jurisprudence, do., 24 do. Civil Law, do., 25 do.

B.—Political Economy, Mill's "Political Economy" was the chief text book. Jurisprudence, Maine's "Ancient Law." Civil Law, Sandar's "Justinian."

C.—No illustrations such as are referred to in the question.

D.—During this Session the instruction was chiefly tutorial.

E.—In Political Economy two of the students were of the third years Arts, the remaining student was a Bachelor of Arts.

F.—In Political Economy, 3 students. Jurisprudence, 2 do. Civil Law, 2 do.

G.—Good.

H.—Satisfactory.

March 24, 1874. R. H. MILLS.

REPORT of the PROFESSOR of ENGLISH LAW.

A.—In selecting the periods for lecturing regard must be had to the Law Terms, so as not to interfere with students attendance on the Law Courts in Dublin, and the lectures to be attended there (at the King's Inns and the Incorporated Society). The lectures began on the 1st December, 1873, and were continued to the 18th. They were resumed on the 18th February, 1874, and were continued till the 10th March. To none of the classes were more than four lectures delivered in each week.

Appendix C.
Reports of the Professors.

B.—First year's class:—Real Property and Conveyancing, the text book being Mr. Joshua Williams' work; other suitable reading was pointed out.

Second year's class:—Equity Jurisprudence was treated of, and the new Acts relating to Bankruptcy explained. The Law of Personal Property, Contracts, and Personal Actions occupied the class through the courses of lectures. The text-books were J. W. Smith's (Equity), Williams' (Personal Property), Smith's (Contracts), other works being also referred to.

The Bankruptcy Acts which came into operation on the 1st January, 1873, were also explained.

Third year's class:—The lectures treated of Common Law Pleading, also of the History, Constitution, and Procedure of Courts, and of Criminal Law. The text-book was Stephen's Blackstone (vols. iii. and iv.); Russell, Woolrych, Gabbett, and other works on Criminal Law were also referred to.

C.—Reference is made to illustrative cases.

D.—The students are occasionally questioned to test their knowledge of the matters treated of.

E.—Law.

F.—The classes were attended by five students, all of whom were matriculated. All attended the qualifying number of lectures.

G.—Satisfactory.

H.—Some inconvenience is occasionally caused in consequence of there being no class-room always available for the law class.

MARK S. O'SHAUGHNESSY.

FACULTY OF MEDICINE.

REPORT of the PROFESSOR of ANATOMY and PHYSIOLOGY.

A.—Two courses delivered daily (Saturday excepted) during the first, second, and part of the third term. Anatomy and Physiology at one o'clock; Anatomical Demonstrations at twelve o'clock. The class roll was called at 2.10. Lectures and demonstrations.

B.—The course of Anatomy and Physiology comprehends the following subjects:—1. Nature of life and organization; general description of the vital functions; special description of the textures of the human frame; development of tissues and other branches of histology; blood, lymph, chyle, saliva, gastric juice, bile, &c. 2. Physiological anatomy of the organs of support and locomotion, circulation, respiration, digestion, chylification, absorption, secretion, excretion, reproduction; the brain and its membranes; spinal cord and membranes; ganglia and nerves; organs of the senses. 3. Physiology of the foregoing subjects. The course of Anatomical Demonstrations includes the special description of the bones, joints, muscles, vessels, nerves, and surgical regions. The dissections performed by the students are superintended by the Professor and Demonstrators of Anatomy.

B.—The books chiefly used are the following, viz.:—Todd and Bowman's "Physiological Anatomy and Physiology," Carpenter's, Kirk's, Valentin's "Physiology," Quain's "Anatomy," Gray's "Anatomy," Wilson's, Ellis's "Demonstrations," &c.

C.—The lectures on Anatomy and Physiology are illustrated by recent and prepared dissections, plates, diagrams, preparations from museum, specimens under microscopes, &c., &c.

D.—The students are examined at times *viva voce* on subjects treated of in the lectures.

Appendix C.

Reports of the Professors.

E.—Students of Medicine and Surgery.

F.—The course of Anatomy and Physiology was attended by 100 students— matriculated—87 ; non-matriculated, 13. The course of Pratical Anatomy was attended by 95 students.

G.—The conduct of students generally was satisfactory, but some acted at times irregularly at the call of the class roll.

H.—The anatomical preparations, plates, charts, &c., are very good, but there is much necessity for a proper anatomical museum, with osteological collections, and reading-room for students in connexion with it. It would be most desirable that the dissecting-room should be enlarged, as the accommodation is not adequate to the number engaged in practical anatomy.

J. HENRY CORBETT.

REPORT of PROFESSOR of MATERIA MEDICA.

A.—Lectures on Materia Medica and Therapeutics. 1st. One term of six months. 2nd. Twenty-two weeks. 3rd. Three lectures weekly, on Tuesdays, Thursdays, and Saturdays, from 3 to 4, P.M.

B.—Pharmacy, pharmacognosy, pharmacology, formulation, posology, and therapeutics. Books recommended—Pereira's "Elements," Oestorten's "Pharmacologia," Trousseau and Pidou's "Traité de Matieré Medicale et de Therapeutique."

C. D.—Illustrated by diagrams, specimens, and microscopical preparations.

E.—Faculty of Medicine.

F.—Forty-eight matriculated.

G.—With four exceptions, conduct admirable, and attendance most regular.

H.—Great deficiency in general department in every way.

PURCELL O'LEARY, A.M., M.D.

REPORT of PROFESSOR of MIDWIFERY.

A.—Courses of lecture on Midwifery. 1. Six months, November to April. 2. Sixty lectures in the course. 3. Three lectures weekly, Monday, Wednesday, and Friday, at four o'clock.

B.—Midwifery. Physiology of reproduction and gestation. Parturition in its various bearings, theoretical and practical. Diseases of childbed. Management of infants.

C.—Diagrams, casts, models, anatomical and other preparations, &c.

E.—Students of the Faculty of Medicine.

F.—Matriculated, 40 ; non-matriculated, 2. General attendance pretty good.

G.—General conduct of the students good.

H.—Supply of preparations, &c., for the illustration of the lectures far from complete.

J. (R.) HARVEY.

REPORT of the PROFESSOR of SURGERY.

A.—Surgery. No. 1. From Tuesday, November 4th, to May 1st. Three terms; three lectures weekly, on Tuesdays and Thursdays at four o'clock, on Saturday at one o'clock.

B.—Theory and practice of Surgery and Operative Surgery. Text books, Erischen, Bryant, Pirrie, Fergusson, Paget.

C. Maps, diagrams, pathological preparations, operations on the subject, histological specimens.

D.—Occasional examinations.

E.—Faculty of Medicine.

F.—Forty-three matriculated students. Attendance very good.

G.—The general conduct, attention, and discipline of the class has been, without any exception, *excellent.*

H.—This department is deficient in supplies, fitments, and general accommodation.

W. K. TANNER.

REPORT of PROFESSOR of ENGLISH LAW on his CLASS in MEDICAL JURISPRUDENCE.

A.—The portion of these lectures of which, as Professor of English Law, I have charge, were delivered in the month of December, 1872. Not more than four lectures were delivered in any week.

B.—The subjects were treated of under the following heads, viz. :—Questions affecting the civil rights or social duties of individuals; injuries to property; injuries to the person; and the state of the law relating to each explained. The subject of medical police was treated of as dealing with questions affecting the preservation of individuals, and what relates to men collected into communities. The statutes as to public health, lunatics, the duties of coroners, &c., were explained. The students were referred to the works by Taylor, Casper, Beck, Paris, and Fonblanque, Winslow, Bucknill, &c. : also as to Criminal Law, to the works of Russell, Archbold, Woolrych, Stephen, &c.

C.—Illustrative cases were referred to, and commented on.

D.—Passages or chapters useful for perusal were pointed out.

E.—Medicine.

F.—Thirty-eight students (of whom thirty-six were matriculated) attended.

G.—The attendance and conduct of the students were in general satisfactory.

H.—I have no requirement to make.

MARK S. O'SHAUGHNESSY.

March 10, 1874.

SCHOOL OF ENGINEERING.

REPORT of PROFESSOR of CIVIL ENGINEERING.

A.—1. Each course extends through three terms. 2. first term, 8 weeks; second term, 12 weeks; third term, 8 weeks. 3. Three lectures per week in each course. Students of first year, Tuesday, Thursday, Saturday, 1, P.M.; second year, Tuesday, Thursday, Saturday, 10, A.M.; third year, Monday, Wednesday, and Friday, 12, noon. Students of first, second, and third years in Office. Office open Tuesday, Thursday, Saturday, 10, A.M. to 2, P.M.

Total number of lectures, &c. :—

To students of first year,	70
" second year,	73
" third year,	73
Office open,	72
Total,	288

B.—*First year.*—Descriptive Geometry; Orthographic Projection; Shadows; Isometric Projection; Perspective; Geometry of the Oblique Bridge; Principles of Architecture. Text-books :—Hall's "Descriptive Geometry"; "Engineer and Machinist's Drawing Book"; Buck on the

Appendix C.

Reports of the Professors.

Oblique Bridge; Rickman's "Architecture." *Second year.*—Surveying, Levelling, and Mensuration. Text-books:—Rankine's "Civil Engineering"; Cotton's "Manual of Railway Engineering." *Third year.*—Materials used in Construction; Strength of Materials; Stresses in Structures; Principles of Construction of Bridges, Roads, Railways, Canals; Hydraulic Engineering; Supply of Towns with Water. Text-books:—Rankine's "Civil Engineering"; Stoney's "Theory of Strains in Girders"; and Downing's "Hydraulics"; references to many of the books in the Library. *Drawing Office.*—First year students are chiefly employed in drawing the problems given at lectures, and easy examples of their application, the second and third year classes in making working drawings of examples of the subjects of lectures, and in mapping.

C.—Illustrated by reference to maps, drawings, and instruments.

D.—Both the tutorial and professorial methods of instruction are adopted, according to the subject of the lecture. Instruction in the field is given (see Class Roll).

E.—Students in the department of Civil Engineering.

F.—Students of first year, 6 (all Matriculated); second year, 6; third year, 4. Total, 16.

The majority of the students have attended tolerably regularly.

G.—Conduct of students generally good.

H.—The condition of department has undergone little change during the last few years.

ALEXANDER JACK.

May 23, 1874.

No. XI.—REPORT OF LIBRARIAN FOR THE SESSION ENDING 1873–4.

The number of volumes in the Library at the date of this Report is 20,926. They may be classified as follows:—

Mathematics, Pure,	805	English Language and Literature,	1,460
Mathematics, Mixed,	713	European do. do.	1,663
Chemistry,	1,031	Celtic do. do.	66
Geology, &c.,	709	History, Antiquities, &c.,	2,811
Botany and Zoölogy,	1,700	Biography,	563
Medical Science,	2,527	Geography, Voyages, Travels, &c.,	612
Theology, Ecclesiastical History, &c.,	332	Engineering,	540
Logic and Metaphysics,	440	Agriculture,	220
Jurisprudence and Political Economy,	590	Fine Arts,	200
Education,	219	Bibliography,	99
Law,	921	Encyclopædias,	634
Ancient Classical Literature,	1,983	Total,	20,926
Sanscrit and other Eastern Languages,	88	Increase over last year,	329

Of these 329 volumes, 19 were presented and 310 obtained by purchase; 251 are continuations of journals, periodicals, and other serial works, 78 are independent treatises on different subjects.

A separate catalogue of works presented, with the names of the donors, is preserved in the Library.

Three volumes are missing from the Library since the date of the last report.

I have had no occasion to report any breach of discipline during the year.

Heating, cleanliness, and ventilation satisfactory.

Three hundred and forty-one volumes have been bound by the contractors during the year. The work was executed in the most satisfactory manner.

MATTHIAS O'KEEFFE, *Librarian.*

Queen's College, Cork, June 10th, 1874.

Appendix C.

No. XII.—COPIES OF THE FORMS OF ANNUAL ACCOUNTS OF THE RECEIPTS AND EXPENDITURE OF QUEEN'S COLLEGE, CORK.

General Abstract of the Receipts and Expenditure of Queen's College, Cork, from the 1st *April*, 1873, *to the* 31st *March*, 1874.

DR.	£	s.	d.
To Balance in Bank on 1st April, 1873,	1,055	14	8½
„ Amounts received from Paymaster of Civil Services—			
Endowment (less Income Tax),	0,930	18	4
Special Parliamentary Grant in aid of Salaries of Professors,	569	16	1
Additional Parliamentary Grant for maintenance of College,	1,000	0	0
„ Amount of College Fees and Fines,	81	4	0
	£9,637	13	1½

CR.	£	s.	d.
By Amount paid for Salaries—			
President, Professors, and Officers,	4,910	5	8
Scholarships, Exhibitions, and Prizes,	1,272	12	11
Wages of Porters,	460	1	4
„ Payments on account of Special Grant,	569	5	8
„ Payments on account of Additional Grant, and College Fees and Fines,	1,052	12	7½
„ Balance in Bank on 31st March, 1874,	1,372	14	11
	£9,037	13	1½

ACCOUNT of the EXPENDITURE of the ADDITIONAL PARLIAMENTARY GRANT of £1,000 for MAINTENANCE of the COLLEGE, and of the COLLEGE FEES and FINES for the YEAR ending 31st MARCH, 1874.

DR.	£	s.	d.
To Amount received from Paymaster-General,	1,000	0	0
„ „ College Fees and Fines,	81	4	0
	£1,081	4	0

CR.				£	s.	d.
By Amount expended on the Library—						
Ancient and Modern Languages,	£27	12	6			
Mathematical and Physical Sciences,	17	7	1			
Natural Sciences,	34	1	4			
Engineering,	1	13	9			
Medical Sciences,	28	6	8			
Legal and Economical Sciences,	12	16	8			
General Library,	9	15	0			
Binding,	58	4	5			
	£189	17	5	189	17	5
By Amount expended for Apparatus, Diagrams, Materials, &c.—						
Physical, Cabinet, and Chemical Laboratory,	£97	15	10½			
Engineering—Diagrams, &c.,	11	13	6			
Medical Faculty—Apparatus, &c.,	35	10	7½			
	£145	0	0	145	0	0
By Amount expended on Museums,				5	2	0
„ „ Heating and Lighting,				341	11	2
„ „ Botanic Garden and College Grounds,				137	10	0
„ „ Printing, Stationery and Advertising,				131	18	9
„ Miscellaneous Expenditure—						
Porter's Clothing,	£53	16	0			
Water Supply,	11	11	0			
Postage,	5	7	6			
Incidental Expenses,	30	18	0½			
	£101	12	6½	101	12	6½
By Balance,				28	11	4½
				£1,081	4	0

(Signed), JOHN ENGLAND, M.A., *Bursar.*

5th April, 1874.

Appendix D.

APPENDIX D.

Deans of Residences.

No. XIII.—Reports of the Deans of Residences for the several Religious Denominations.

2, South-terrace, Cork,
June 7th, 1874.

Sir,—In reply to your letter requesting me to forward my report of the conduct of the students in the Queen's College who are members of the Church of Ireland, I beg leave to say that none of the students attended my religious instructions during the past year. The Council refused to give me the use of a room inside the College. The Visitors ruled that the new Charter did not oblige the Council to allow me the use of a room. The only place left for me was my own school-house, nearly half a mile from the College, and I suppose the students considered that they were not bound to attend. As I understand the words of the Charter they are bound to attend religious instruction, and it now rests with the President and Council to see what is to be done. Before the Visitors ruled that the Council was not bound to give me the use of a room inside the College I frequently had twenty or thirty students in my class. Since that ruling none of the students attended religious instruction, and I can account for their conduct only by supposing that they are resolved upon bringing matters to an issue. I beg leave now formally to report the students under my care for their habitual neglect of the religious instruction provided for them, and I shall hope that the Council may be able to find some remedy of this evil.

Your obedient servant,
George Webster, D.D.,
Dean of Residences.

R. J. Kenny, Esq., Registrar.

TO THE PRESIDENT OF THE QUEEN'S COLLEGE, CORK.

Sir,—In reference to the Presbyterian students in attendance on the Queen's College, Cork, for the Session 1873–74, I have to report very favourably. They maintain a good character, were diligent in their studies, and are attentive to their religious duties.

I am yours very truly,
William Magill,
Dean of Residences.

Cork, May 28th, 1874.

5, Montpellier-terrace, Cork,
28th May, 1874.

Sir,—I beg to report that there are no students of the Wesleyan Church residing in licensed boarding houses in the city, and only one in attendance on College lectures this session. His moral conduct is, as far as I know, very good.

To have only one student at the Queen's is, I understand, a very unusual thing; I cannot account for it.

Your obedient servant,
Wm. Guard Price,
Wesleyan Dean of Residences.

To the President,
Queen's College, Cork.

Appendix E.

Sessional Examinations.

APPENDIX E.

No. XIV.

Faculty of Arts.

SESSIONAL EXAMINATIONS—FIRST YEAR.

GREEK.

Examiner, Dr. Ryall.

Translate :—

Euripides—*Medea*, vv. 764–796.

ὦ Ζεῦ Δίκη τε Ζηνὸς Ἡλίου τε φῶς,
νῦν καλλίνικοι τῶν ἐμῶν ἐχθρῶν, φίλαι,
γενησόμεσθα κεἰς ὁδὸν βεβήκαμεν·
νῦν δ’ ἐλπὶς ἐχθροὺς τοὺς ἐμοὺς τίσειν δίκην.
οὗτος γὰρ ἀνὴρ ᾗ μάλιστ’ ἐκάμνομεν
λιμὴν πέφανται τῶν ἐμῶν βουλευμάτων·
ἐκ τοῦδ’ ἀναψόμεσθα πρυμνήτην κάλων,
μολόντες ἄστυ καὶ πόλισμα Παλλάδος.
ἤδη δὲ πάντα τἀμά σοι βουλεύματα
λέξω· δέχου δὲ μὴ πρὸς ἡδονὴν λόγοῦς.
πέμψασ’ ἐμῶν τιν’ οἰκετῶν Ἰάσονα
εἰς ὄψιν ἐλθεῖν τὴν ἐμὴν αἰτήσομαι·
μολόντι δ’ αὐτῷ μαλθακοὺς λέξω λόγους,
ὡς καὶ δοκεῖ μοι ταῦτα καὶ καλῶς ἔχει,
γάμους τυράννων οὓς προδοὺς ἡμᾶς ἔχει·
καὶ ξύμφορ’ εἶναι καὶ καλῶς ἐγνωσμένα·
παῖδας δὲ μεῖναι τοὺς ἐμοὺς αἰτήσομαι,
οὐχ ὡς λιποῦσα πολεμίας ἐπὶ χθονὸς
ἐχθροῖσι παῖδας τοὺς ἐμοὺς καθυβρίσαι,
ἀλλ’ ὡς δόλοισι παῖδα βασιλέως κτάνω.
πέμψω γὰρ αὐτοὺς δῶρ’ ἔχοντας ἐν χεροῖν,
νύμφῃ φέροντας, τήνδε μὴ φεύγειν χθόνα,
λεπτόν τε πέπλον καὶ πλόκον χρυσήλατον·
κἄνπερ λαβοῦσα κόσμον ἀμφιθῇ χροΐ,
κακῶς ὀλεῖται πᾶς θ’ ὃς ἂν θίγῃ κόρης·
τοιοῖσδε χρίσω φαρμάκοις δωρήματα.
ἐνταῦθα μέντοι τόνδ’ ἀπαλλάσσω λόγον·
ᾤμωξα δ’ οἷον ἔργον ἔστ’ ἐργαστέον
τοὐντεῦθεν ἡμῖν· τέκνα γὰρ κατακτενῶ
τἄμ’· οὔτις ἔστιν ὅστις ἐξαιρήσεται·
δόμον τε πάντα συγχέασ’ Ἰάσονος
ἔξειμι γαίας, φιλτᾶτων παίδων φόνον
φεύγουσα καὶ τλᾶσ’ ἔργον ἀνοσιώτατον.

Appendix E.

Sessional Examinations.

1. Parse fully the following words :—ᾗ (v. 768), *κάλων*, *πέφανται*, *ἀμφιθῇ*, *θιγῇ*, *συγχέασα*.

2. Explain the following constructions :—*λιμὴν πέφανται*—*μολόντες ἄστυ*—*γάμους τυράννων οὓς προδοὺς ἡμᾶς ἔχει*—*καθυβρίσαι*.

3. (*a.*) Explain the different uses of *ὡς* in vv. 781 and 783. (*b.*) Derive *καλλίνικος* and *χρυσήλατος*. (*c.*) Explain the difference between the *ἂν* in *κἄνπερ*, v. 787, and in the following verse.

4. Write down in full all the persons of *ὀλεῖται* and *πέφανται*, and all the cases of *κάλων*, v. 770.

Xenophon—*Memorabilia*, Book I., c. iii.

εἰ δέ τι δόξειεν αὐτῷ σημαίνεσθαι παρὰ τῶν θεῶν, ἧττον ἂν ἐπείσθη παρὰ τὰ σημαινόμενα ποιῆσαι ἢ εἴ τις αὐτὸν ἔπειθεν ὁδοῦ λαβεῖν ἡγεμόνα τυφλὸν καὶ μὴ εἰδότα τὴν ὁδὸν ἀντὶ βλέποντος καὶ εἰδότος· καὶ τῶν ἄλλων δὲ μωρίαν κατηγόρει, οἵτινες παρὰ τὰ ὑπὸ τῶν θεῶν σημαινόμενα ποιοῦσί τι, φυλαττόμενοι τὴν παρὰ τοῖς ἀνθρώποις ἀδοξίαν. αὐτὸς δὲ πάντα τἀνθρώπινα ὑπερεώρα πρὸς τὴν παρὰ τῶν θεῶν ξυμβουλίαν. Διαίτῃ δὲ τήν τε ψυχὴν ἐπαίδευσε καὶ τὸ σῶμα, ᾗ χρώμενος ἂν τις, εἰ μή τι δαιμόνιον εἴη, θαῤῥαλέως τε καὶ ἀσφαλῶς διάγοι, καὶ οὐκ ἂν ἀπορήσειε τοσαύτης δαπάνης. οὕτω γὰρ εὐτελὴς ἦν, ὥςτ' οὐκ οἶδ' εἴ τις οὕτως ἂν ὀλίγα ἐργάζοιτο ὥςτε μὴ λαμβάνειν τὰ Σωκράτει ἀρκοῦντα. σίτῳ μὲν γὰρ τοσούτῳ ἐχρῆτο ὅσον ἡδέως ἤσθιε, καὶ ἐπὶ τοῦτον οὕτω παρεσκευασμένος ᾔει, ὥςτε τὴν ἐπιθυμίαν τοῦ σίτου ὄψον αὐτῷ εἶναι· ποτὸν δὲ πᾶν ἡδὺ ἦν αὐτῷ διὰ τὸ μὴ πίνειν, εἰ μὴ διψῴη.

1. Parse fully *δόξειεν*, *ὑπερέωρα*, *ἐχρῆτο*, *ᾔει*, *διψῴη*, *ἤσθιε*.
2. Why is *μή* used instead of *οὐ* in *μὴ εἰδότα τὴν ὁδόν*?

Translate into Greek :—

1. Socrates used to say that we ought to do everything that is pointed out by the Gods.
2. If the men of the present day were temperate, they would fare better.
3. If we do not avoid the intercourse of the wicked, we shall ourselves become wicked.
4. Whoever is caught will be punished.
5. He told us that if the slaves acted in this way, they would have to be punished.
6. He says that he will not go away.
7. This person spent half his life most basely.
8. I am glad that my friends' children are good.
9. When we have taken any city we will kill all the inhabitants.

LATIN.

Examiner, Professor Lewis.

Translate :—

Tacitus—*Germania*, c. 45.

Trans Suionas aliud mare, pigrum ac prope inmotum, quo cingi cludique terrarum orbem hinc fides, quod extremus cadentis iam solis fulgor in ortum edurat adeo clarus, ut sidera hebetet; sonum insuper emergentis audiri formasque deorum et radios capitis aspici persuasio adicit. Illuc usque, et fama vera, tantum natura. Ergo iam dextro Suebici maris litore Aestiorum gentes adluuntur, quibus ritus habitusque Sueborum, lingua Britannicae propior. Matrem deum venerantur. Insigne superstitionis formas aprorum gestant: id pro armis omnique tutela securum deae cultorem etiam inter hostis praestat. Rarus ferri, frequens fustium usus. Frumenta ceterosque fructus patientius quam pro solita Germanorum inertia laborant.

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HORACE—*Odes*, iii., 9.

Horatius. Donec gratus eram tibi
Nec quisquam potior brachia candidae
Cervici iuvenis dabat,
Persarum vigui rege beatior.

Lydia. Donec non alia magis
Arsisti neque erat Lydia post Chloën,
Multi Lydia nominis
Romana vigui clarior Ilia.

Horatius. Me nunc Thressa Chloë regit,
Dulces docta modos et citharae sciens,
Pro qua non metuam mori,
Si parcent animae fata superstiti.

1. When did Tacitus flourish? Give the titles of his works. Name his most celebrated contemporaries.
2. Describe the situation of the Suevi, Marcomanni, and Quadi.
3. Mention some poetical phrases which occur in Tacitus.
4. Derive the words *sulcus*, *oppidum*, and *manifestus*.
5. Give some account of Palinurus, Regulus, Pyrrhus, and Pacorus.

Translate into Latin:—

That you may be able to die courageously, obey the laws of virtue.
He was pretending to be mad, that he might not be banished.
He cries out, that it is all over with the army.
You promised that you would send me all the news of the town.
That you may die courageously, live virtuously.
He praises Caius, that he may himself be praised by Caius.
He will praise Caius, that he may be praised by Caius.

Translate into Latin elegiacs:—

Talents however answer not to us as before,
But I plough the dry shore with sterile plough-share.
If thou sparest not me, thou oughtest to spare my fortune:
Not anyone's anger has room in us.
Gods, by whose warning we have spoken events about to happen,
Prove our words, I pray, with quick faith.

THE ENGLISH LANGUAGE AND ENGLISH LITERATURE.

Examiner, Professor ARMSTRONG.

1. Explain the meaning of the terms *isolating*, *agglutinative*, and *inflexional* as applied to language.
2. Name the principal languages of the Low German group.
3. Mention some of the phonetic changes which distinguish English from modern German.
4. State Grimm's law, and illustrate it by examples.

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5. Name the five periods into which Dr. Morris divides the history of the English language, and point out some of the principal characteristics of the language at each of these periods.

6. Decline *tunge*, *sunu*, and *word*.

7. Give an account of the literature of the English prior to the Norman Conquest, characterizing its spirit and its style.

8. Explain the system of A. S. versification.

9. Give an account of the Norman people—their origin, conquests, language, &c.

10. Name the principal extant English poems produced between 1066 and the death of Chaucer.

11. Make a metrical analysis of the following passage, and explain the rules, metrical and grammatical, which guide you in making it :—

> "Therto he strong was as a champioun ;
> He knew the tavernes wel in every toun,
> And everych hostiller and tappestere,
> Bet than a lazer, or a beggestere,
> For unto such a worthi man as he
> Accordede not, as by his faculté,
> To han with sike lazars aqueyntaunce.
> It is not honest, it may not avaunce,
> As for to delen with no such poraille,
> But al with riche and sellers of vitaille."

12. What are the sounds which Mr. Ellis assigns to the English vowels and diphthongs in Chaucer's time, and what is his method in determining them?

MODERN LANGUAGES.

Examiner, Professor DE VERICOUR.

Translate into French:—

Our little habitation was situated at the foot of a sloping hill, sheltered with a beautiful underwood behind, and a prattling river before; on one side a meadow, on the other a green. My farm consisted of about twenty acres of excellent land, having given a hundred pounds for my predecessor's good-will. Nothing could exceed the neatness of my little enclosures, the elms and hedgerows appearing with inexpressible beauty. My house consisted of but one story, and was covered with thatch, which gave it an air of great snugness; the walls on the inside were nicely white-washed, and my daughters undertook to adorn them with pictures of their own designing. Though the same room served us for parlour and kitchen, that only made it the warmer.

GOLDSMITH.

Translate into French:—

REFLECTIONS ON THE REVOLUTION IN FRANCE.

Queen Marie Antoinette and the Age of Chivalry.

It is now sixteen or seventeen years since I saw the Queen of France, then the Dauphiness, at Versailles; and surely never lighted on this orb, which she hardly seemed to touch, a more delightful vision. I saw her just above the horizon, decorating and cheering the elevated sphere she just began to move in,—glittering like the morning star, full of life, and

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splendour, and joy. Oh! what a revolution! and what a heart must I have, to contemplate without emotion that elevation, and that fall! Little did I dream when she added titles of veneration to those of enthusiastic, distant, respectful love, that she should ever be obliged to carry the sharp antidote against disgrace concealed in that bosom; little did I dream that I should have lived to see such disasters fallen upon her in a nation of gallant men, in a nation of men of honour and of cavaliers. I thought ten thousand swords must have leaped from their scabbards to avenge even a look that threatened her with insult.

But the age of chivalry is gone. That of sophisters, economists, and calculators, has succeeded; and the glory of Europe is extinguished for ever. Never, never more, shall we behold that generous loyalty to rank and sex, that proud submission, that dignified obedience, that subordination of the heart, which kept alive, even in servitude itself, the spirit of an exalted freedom. The unbought grace of life, the cheap defence of nations, the nurse of manly sentiment and heroic enterprise, is gone! It is gone, that sensibility of principle, that chastity of honour, which felt a stain like a wound; which inspired courage whilst it mitigated ferocity, which ennobled whatever it touched, and under which vice itself lost half its evil, by losing all its grossness.

BURKE.

1. Give the principal rules of the subjunctive mood, and illustrate them by examples.

2. How do the French express such sentences as these?—He is to read. I have just seen the queen. The prince has just past. You should have stopped.

3. Explain the difference of signification between the words:—*Rose* and *rosse*; *souffler* and *souffleter*; *sensé* and *sensible*; *fonder* and *fondre*; *fond*, *fonds*, and *fonts*; *épancher* and *étancher*.

4. Explain the idiom:—*I would have you go*; and translate it.

5. Give a summary of the principal French chronicles.

6. State what you know of the life and works of one of the following writers:—Fénélon, Bossuet, Molière, Lafontaine.

MATHEMATICS.

Examiner, Professor NIVEN.

PASS PAPER.

1. Two triangles, which have a pair of sides and the included angles in each equal, are equal in every respect. Prove this.

When the equal angles are not those included between the sides, what result can then be derived?

2. The square on the hypotenuse of a right-angled triangle is equal to the sum of the squares on the sides enclosing the right angle.

3. Draw two tangents to a circle from an external point.

If the external point move on the arc of a circle passing through the centre of the given circle, show that the middle point of the chord of contact moves on a straight line.

4. Define a regular polygon, and show that to every such polygon there belongs a point which is equidistant from the angles of the polygon.

5. Describe a rectilineal figure which shall be equal to one and similar to another given rectilineal figure.

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6. Multiply $x^2 - ax + a^2$ by $x^2 + ax + a^2$, and divide $x^2 - x^{\frac{4}{3}} + 4a^{\frac{2}{3}}x^{\frac{2}{3}} - 4a^{\frac{4}{3}}$ by $x + x^{\frac{2}{3}} - 2a^{\frac{2}{3}}$.

Extract the square roots of $x^4 - 4x^3 + 8x + 4$, and of 3 to four decimal places.

7. Find $a^m \times a^n$. Explain how $a^{\frac{p}{q}}$ is defined.

8. Find the H. C. D. of $8x^3 - 1$ and $2x^3 - 13x^2 + 3$.

Show that—

$$\frac{ax^2(a-x)}{x^4+a^2x^2+a^4} + \frac{a^2x^4(a^2-x^2)}{x^8+a^4x^4+a^8} = \frac{a^4(a^4+x^4)}{x^8+a^4x^4+a^8} - \frac{a(a+x)}{x^2+ax+a^2}.$$

9. Solve the equations—

$$(1)\ \frac{5x+2}{7} - \frac{4x+\frac{11}{7}}{5x-2} = \frac{15x+5}{21}.$$

$$(2)\ 3x^2 + 4x = 95.$$

$$(3)\ \sqrt{x+1} + \sqrt{2x-1} = \sqrt{3x+2}.$$

10. Define a surd, and find a factor to rationalize a binomial surd.

Simplify $\dfrac{\sqrt{6}}{1-\sqrt{2}+\sqrt{3}}$.

11. *Define* a harmonic series, and find the harmonic mean of two quantities.

What are the arithmetic, geometric, and harmonic series of which $\frac{1}{3}$ and $\frac{3}{10}$ are the first and third terms? Write down the n^{th} terms of each.

12. State the different modes of measuring angles, and the relations which connect the measures of any angle in the three systems.

If in a certain system an angle of 36° is represented by 10, what number would represent the circular unit?

13. Prove the formulæ—

$$\tan(180^\circ + A) = \tan A$$
$$\cos(A+B) = \cos A \cos B - \sin A \sin B$$
$$\cot\left(\frac{\pi}{4} - \frac{A}{2}\right) = \frac{\cos A}{1 - \sin A}.$$

14. If $x = \xi\cos\alpha + \eta\cos\beta$, $y = \xi\sin\alpha + \eta\sin\beta$, and if by this substitution $ax^2 + 2bxy + cy^2$ become $A\xi^2 + 2B\xi\eta + C\eta^2$, show that $\dfrac{AC - B^2}{\sin^2(\alpha-\beta)} = ac - b^2$.

15. In any triangle, find $\tan\dfrac{A}{2}$ in terms of the sides.

If O be a point within the angle BAC, and any line POQ be drawn through O cutting the sides in P, Q, show that the sum of the reciprocals of the triangles OAP, OAQ is constant.

PRIZE PAPER.

1. Determine the common tangents to two given circles, and show that two of the points of intersection of these tangents are points of direct and inverse similitude of the circles.

2. If the vertical angle of a triangle be bisected by a line which also cuts the base, show that the rectangle under the sides of the triangle is equal to the rectangle under the segments of the base together with the square of the line bisecting the angle.

3. On a chord AB of a circle is taken any point C, and equilateral triangles are described on AC, BC, the line joining the vertices of which cuts AB in D; also, a series of circles are drawn touching AB in C.

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Show that all their chords of intersection with the original circle pass through D, and that a circle with centre D, passing through C, cuts them and every circle through A,B at right angles.

4. State and prove the rule for finding the highest common divisor of two algebraic expressions.

5. Classify quadratic equations, giving an account of the methods of solution and the nature of the results obtained.

If $\alpha\beta$ be the roots of the equation $x^2+px+q=0$, find the equation whose roots are $p\alpha^2-q\beta$ and $p\beta^2-q\alpha$.

6. *Define* a determinant, and show that interchanging two columns of a determinant merely changes its sign. Thence deduce a rule for evaluating a determinant.

Evaluate and solve the equation—

$$\begin{vmatrix} 0 & b & 0 & 0 & 0 \\ -1 & a & b^2 & 0 & 0 \\ 0 & -1 & a & b^2 & 0 \\ 0 & 0 & -1 & a & b \\ 0 & 0 & 0 & -1 & x \end{vmatrix} = x \begin{vmatrix} a & b^2 & 0 & 0 \\ -1 & a & b^2 & 0 \\ 0 & -1 & a & b \\ 0 & 0 & -1 & x \end{vmatrix}$$

7. From two magnitudes a, b are formed $a_1\ b_1$ by the relations $a_1=\frac{a+b}{2}$, $b_1=\frac{a-b}{2}$. From $a_1 b_1$ are formed $a_2 b_2$ in the same manner, and so on; find the result of n such operations, and the sum of all the pairs which can be formed in this way.

8. Assuming the Binomial Theorem true for a positive integral index, prove it true also for a positive fractional index.

Find four terms, and the general term, of the expansion of $(1-2x)^{\frac{4}{3}}$.

Assuming the identities $2\times 25=50$, $4\times 6=24$, find $\sqrt{6}$ and $\sqrt{2}$ correct to five decimal places.

9. State and prove the principle of proportional parts for logarithmic tables.

Sum the series $\frac{3}{1\times 2}-\frac{4}{2\times 3}+\frac{5}{3\times 4}-$ &c. to ∞.

10. Given sin A, show how to find $\sin\frac{A}{2}$ and to determine, when the proper conditions are given, the ambiguities of sign which the result contains.

11. Find the radius of the circle inscribed in a triangle in terms of the sides.

If 0 be the centre of the inscribed circle, $0_1 0_2 0_3$ those of the three escribed circles, show that $00_1^2+0_2 0_3^2$=square on diameter of circumscribing circle.

12. Prove that the circular measure of an angle less than a right angle lies between its sine and its tangent.

By considering an angle of 15°, show that π lies between 3·105 and 3·216.

SECOND YEAR.

GREEK.

Examiner, DR. RYALL.

Translate :—

(A.) EURIPIDES—*Iphigen. in Aulid.*, vv. 1338–1367.

ΙΦ. ὦ τεκοῦσα μῆτερ, ἀνδρῶν ὄχλον εἰσορῶ πέλας.
ΚΛ. τόν γε τῆς θεᾶς παῖδα, τέκνον, ᾧ σὺ δεῦρ' ἐλήλυθας.

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ΙΦ. διαχαλᾶτέ μοι μέλαθρα, δμῶες, ὡς κρύψω δέμας. 1340
ΚΛ. τί δέ, τέκνον, φεύγεις ; ΙΦ. Ἀχιλλέα τόνδ' ἰδεῖν αἰσχύνομαι.
ΚΛ. ὡς τί δή ; ΙΦ. τὸ δυστυχές μοι τῶν γάμων αἰδῶ φέρει.
ΚΛ. οὐκ ἐν ἁβρότητι κεῖσαι πρὸς τὰ νῦν πεπτωκότα.
ἀλλὰ μίμν'· οὐ σεμνότητος ἔργον, ἢν δυνώμεθα.
ΑΧ. ὦ γύναι τάλαινα, Λήδας θύγατερ, ΚΛ. οὐ ψευδῆ θροεῖς. 1345
ΑΧ. δείν' ἐν Ἀργείοις βοᾶται ΚΛ. τίνα βοήν ; σήμαινέ μοι.
ΑΧ. ἀμφὶ σῆς παιδός, ΚΛ. πονηρὸν εἶπας οἰωνὸν λόγων.
ΑΧ, ὡς χρεὼν σφάξαι νιν. ΚΛ. κοὐδεὶς ἐναντία λέγει ;
ΑΧ. εἰς θόρυβον ἐγώ τι καὐτὸς ἤλυθον, ΚΛ. τίν', ὦ ξένε ;
ΑΧ. σῶμα λευσθῆναι πέτροισι. ΚΛ. μῶν κόρην σώζων ἐμήν; 1350
ΑΧ. αὐτὸ τοῦτο. ΚΛ. τίς δ' ἂν ἔτλη σώματος τοῦ σοῦ θιγεῖν ;
ΑΧ. πάντες Ἕλληνες. ΚΛ. στρατὸς δὲ Μυρμιδὼν οὔ σοι παρῆν ;
ΑΧ. πρῶτος ἦν ἐκεῖνος ἐχθρός. ΚΛ. δι' ἄρ' ὀλώλαμεν, τέκνον.
ΑΧ. οἵ με τὸν γάμων ἀπεκάλουν ἥσσον'. ΚΛ. ἀπεκρίνω δὲ τί;
ΑΧ. τὴν ἐμὴν μέλλουσαν εὐνὴν μὴ κτανεῖν, ΚΛ. δίκαια γάρ. 1355
ΑΧ. ἣν ἐφήμισεν πατήρ μοι. ΚΛ. κἀργόθεν γ' ἐπέμψατο.
ΑΧ. ἀλλ' ἐνικώμην κεκραγμοῦ. ΚΛ. τὸ πολὺ γὰρ δεινὸν κακόν.
ΑΧ. ἀλλ' ὅμως ἀρήξομέν σοι. ΚΛ. καὶ μαχεῖ πολλοῖσιν εἷς;
ΑΧ. εἰσορᾷς τεύχη φέροντας τούσδ' ; ΚΛ. ὄναιο τῶν φρενῶν.
ΑΧ. ἀλλ' ὀνησόμεθα. ΚΛ. παῖς ἄρ' οὐκέτι σφαγήσεται; 1360
ΑΧ. οὔκ, ἐμοῦ γ' ἑκόντος. ΚΛ. ἥξει δ' ὅστις ἅψεται κόρης ;
ΑΧ. μυρίοι γ'· ἄξει δ' Ὀδυσσεύς. ΚΛ. ἆρ' ὁ Σισύφου γόνος ;
ΑΧ. αὐτὸς οὗτος. ΚΛ. ἴδια πράσσων, ἢ στρατοῦ ταχθεὶς ὕπο ;
ΑΧ. αἱρεθεὶς ἑκών. ΚΛ. πονηράν γ' αἵρεσιν, μιαιφονεῖν.
ΑΧ. ἀλλ' ἐγὼ σχήσω νιν. ΚΛ. ἄξει δ' οὐχ ἑκοῦσαν ἁρπάσας ; 1365
ΑΧ. δηλαδὴ ξανθῆς ἐθείρης. ΚΛ. ἐμὲ δὲ τί χρὴ δρᾶν τότε ;
ΑΧ. ἀντέχου θυγατρός. ΚΛ. ὡς τοῦδ' οὕνεκ' οὐ σφαγήσεται.

1. Explain the following constructions:—(*a.*) ὡς τί δή ; (*b.*) τίνα βοήν ; (*c.*) γάμων ἥσσονα. (*d.*) ἐνικώμην κεκραγμοῦ. (*e.*) πονηράν γ' αἵρεσιν, μιαιφονεῖν. (*f.*) ἢν δυνώμεθα—supply the ellipsis.

2. In what metre is the extract written? State its laws, and show that v. 1349, εἰς θόρυβον κ.τ.λ., must be corrupt.

3. (*a.*) On what public occasions did the dramatic contests take place at Athens. (*b.*) Explain the expressions χορηγεῖν, κορυφαῖος, τετραλογία, περιπετεία, ἀναγνωρίσις.

HOMER—*Odyssey*, B. IV., vv. 398–424.

ὣς ἐφάμην, ἡ δ' αὐτίκ' ἀμείβετο δῖα θεάων·
τοιγὰρ ἐγώ τοι, ξεῖνε, μάλ' ἀτρεκέως ἀγορεύσω.
ἦμος δ' ἠέλιος μέσον οὐρανὸν ἀμφιβεβήκῃ, 400
τῆμος ἄρ' ἐξ ἁλὸς εἶσι γέρων ἅλιος νημερτὴς
πνοιῇ ὕπο Ζεφύροιο, μελαίνῃ φρικὶ καλυφθείς,
ἐκ δ' ἐλθὼν κοιμᾶται ὑπὸ σπέσσι γλαφυροῖσιν·
ἀμφὶ δέ μιν φῶκαι νέποδες καλῆς ἁλοσύδνης
ἁθρόαι εὕδουσιν, πολιῆς ἁλὸς ἐξαναδῦσαι, 405
πικρὸν ἀποπνείουσαι ἁλὸς πολυβενθέος ὀδμήν.
ἔνθα σ' ἐγὼν ἀγαγοῦσα ἅμ' ἠοῖ φαινομένῃφιν

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εὐνάσω ἐξείης· σὺ δ' ἐῢ κρίνασθαι ἑταίρους
τρεῖς, οἵ τοι παρά νηυσίν ἐϋσσέλμοισιν ἄριστοι.
πάντα δέ τοι ἐρέω ὀλοφώϊα τοῖο γέροντος.
φώκας μέν τοι πρῶτον ἀριθμήσει καί ἔπεισιν·
αὐτὰρ ἐπὴν πάσας πεμπάσσεται ἠδὲ ἴδηται,
λέξεται ἐν μέσσῃσι, νομεὺς ὣς πώεσι μήλων.
τὸν μὲν ἐπὴν δὴ πρῶτα κατευνηθέντα ἴδησθε,
καὶ τότ' ἔπειθ' ὑμῖν μελέτω κάρτος τε βίη τε,
αὖθι δ' ἔχειν μεμαῶτα καὶ ἐσσύμενόν περ ἀλύξαι.
πάντα δὲ γιγνόμενος πειρήσεται, ὅσσ' ἐπὶ γαῖαν
ἑρπετὰ γίγνονται, καὶ ὕδωρ καὶ θεσπιδαὲς πῦρ·
ὑμεῖς δ' ἀστεμφέως ἐχέμεν μαλλόν τε πιέζειν.
ἀλλ' ὅτε κεν δή σ' αὐτὸς ἀνείρηται ἐπέεσσιν,
τοῖος ἐών, οἷόν κε κατευνηθέντα ἴδησθε,
καί τότε δὴ σχέσθαι τε βίης λῦσαί τε γέροντα,
ἥρως, εἴρεσθαι δέ, θεῶν ὅς τίς σε χαλέπτει,
νόστον θ', ὡς ἐπὶ πόντον ἐλεύσεαι ἰχθυόεντα.

1. Point out all the places where the insertion of the letter Ϝ seems necessary in the above extract.

2. (*a.*) Derive νέποδες, ἁλοσύδνη, πεμπάζω, ὀλοφώϊα. (*b.*) Supply the ellipsis after πειρήσεται, v. 417. (*c.*) How do you account for the use of the infinitive instead of the imperative in commands and wishes?

3. (*a.*) Derive and explain the following words:—δέκτης, μάσταξ, ἁλιαής, χαλίφρων, πορφύρω, ἀοσσητήρ, ὄρχαμος, ὑπηοῖος, ἀμολγός. (*b.*) Analyse the following forms:—εἶος, κεκράαντο, εἶβεν, νάσσα, δηιόῳεν, λόεον, ἀμφαφόωσα, ἠϊα, λέκτο.

4. Explain the construction of πώεσι, v. 413.

Translate:—

Demosthenes—*Olynthiacs.*

οἱ μὲν οὖν πολλοὶ Μακεδόνων πῶς ἔχουσι Φιλίππῳ, ἐκ τούτων ἄν τις σκέψαιτο οὐ χαλεπῶς· οἱ δὲ δή περὶ αὐτὸν ὄντες ξένοι καὶ πεζέταιροι δόξαν μὲν ἔχουσιν ὡς εἰσὶ θαυμαστοί καὶ συγκεκροτημένοι τὰ τοῦ πολέμου, ὡς δ' ἐγὼ τῶν ἐν αὐτῇ τῇ χώρᾳ γεγενημένων τινὸς ἤκουον, ἀνδρὸς οὐδαμῶς οἵου τε ψεύδεσθαι, οὐδένων εἰσὶ βελτίους. εἰ μὲν γάρ τις ἀνήρ ἐστιν ἐν αὐτοῖς οἷος ἔμπειρος πολέμου καὶ ἀγώνων, τούτους μὲν φιλοτιμίᾳ πάντας ἀπωθεῖν αὐτὸν ἔφη, βουλόμενον πάντα αὐτοῦ δοκεῖν εἶναι τὰ ἔργα· πρὸς γὰρ αὖ τοῖς ἄλλοις καὶ τὴν φιλοτιμίαν τἀνδρός ἀνυπέρβλητον εἶναι· εἰ δέ τις σώφρων ἢ δίκαιος ἄλλως, τήν καθ' ἡμέραν ἀκρασίαν τοῦ βίου καὶ μέθην καὶ κορδακισμοὺς οὐ δυνάμενος φέρειν, παρεῶσθαι καὶ ἐν οὐδενὸς εἶναι μέρει τὸν τοιοῦτον. λοιπούς δὴ περί αὐτόν εἶναι λῃστὰς καὶ κόλακας καὶ τοιούτους ἀνθρώπους οἵους μεθυσθέντας ὀρχεῖσθαι τοιαῦτα οἷα ἐγώ νῦν ὀκνῶ πρός ὑμας ὀνομάσαι. δῆλον δ' ὅτι ταῦτ' ἐστὶν ἀληθῆ· καὶ γὰρ οὓς ἐνθένδε πάντες ἀπήλαυνον ὡς πολὺ τῶν θαυματοποιῶν ἀσελγεστέρους ὄντας, Καλλίαν ἐκεῖνον τὸν δημόσιον καὶ τοιούτους ἀνθρώπους, μίμους γελοίων καὶ ποιητάς αἰσχρῶν ᾀσμάτων ὧν εἰς τοὺς συνόντας ποιοῦσιν ἕνεκα τοῦ γελασθῆναι, τούτους ἀγαπᾷ καὶ περὶ αὑτὸν ἔχει.

1. (*a.*) What is the metaphor in συγκεκροτημένοι? (*b.*) Explain the

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construction οἷος ἔμπειρος πολέμου. (*c.*) Distinguish between πεζέταιροι and ἕταιροι in a military sense. (*d.*) Explain the phrase, ἐν οὐδένος μέρει.

2. Point out the relative positions of Olynthus, Potidæa, Pydna, and Amphipolis.

Translate into Greek :—

1. Prodicus says that Heracles (when he was starting from childhood into youth, at which period the young now becoming their own masters show, whether they will take the road to life through virtue, or that through vice), went forth into a quiet place and sat down, at a loss, which of the roads he should take. And that there appeared to advance towards him two women, the one comely and noble in aspect, adorned by nature as to her person with purity, as to her eyes with modesty, as to her mien with sobriety, and in a white garment; but the other nourished to corpulence and softness, having her complexion embellished so as to appear whiter and ruddier than the reality, and her figure, so as to seem more upright than nature; and that she kept her eyes wide open, and frequently looked at herself, and observed whether others admired her; and often cast a look upon her own shadow.

2. For this reason all physicians forbid to their patients the use of oil in their food, except in the smallest quantity.

Translate into six trimeter Iambics :—

Do ye think ye could govern a land, if all the people dwelt (πολιτεύομαι) poor without rich men? Good and evil cannot be asunder, but there is a certain commixture, for things to be well. For what a poor man has not, a rich gives, and what we rich do not possess, we obtain by employing (*partic.*) the poor.

LATIN.

Examiner, Professor LEWIS.

Translate :—

JUVENAL, vii., 122–137.

Si quater egisti, si contigit aureus unus,
Inde cadunt partes in foedere pragmaticorum.
Aemilio dabitur, quantum petet, et melius nos
Egimus; huius enim stat currus aeneus, alti
Quadriiuges in vestibulis, atque ipse feroci
Bellatore sedens curvatum hastile minatur
Eminus et statua meditatur proelia lusca.
Sic Pedo conturbat, Matho deficit; exitus hic est
Tongilli, magno cum rhinocerote lavari
Qui solet et vexat lutulenta balnea turba
Perque forum iuvenes longo premit assere Medos,
Empturus pueros, argentum, murrhina, villas;
Spondet enim Tyrio stlataria purpura filo.
Et tamen est illis hoc utile; purpura vendit
Causidicum, vendunt amethystina; convenit illis
Et strepitu et facie maioris vivere census.
Sed finem impensae non servat prodiga Roma.

CICERO—*Ad Familiares*, II., xv., 4.

Ego de provincia decedens quaestorem Caelium praeposui provinciae.

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"Puerum?" inquis. At quaestorem, at nobilem adolescentem, at omnium fere exemplo: neque erat superiore honore usus quem praeficerem. Pomptinius multo ante discesserat: a Quinto fratre impetrari non poterat: quem tamen si reliquissem, dicerent iniqui non me plane post annum, ut senatus voluisset, de provincia decessisse, quoniam alterum me reliquissem. Fortasse etiam illud adderent, senatum eos voluisse provinciis praeesse, qui antea non praefuissent: fratrem meum triennium Asiae praefuisse. Denique nunc sollicitus non sum: si fratrem reliquissem, omnia timerem. Postremo non tam mea sponte quam potentissimorum duorum exemplo, qui omnes Cassios Antoniosque complexi sunt, hominem adolescentem non tam adlicere volui quam alienare nolui. Hoc tu meum consilium laudes necesse est: mutari enim non potest. De Ocella parum ad me plane scripseras et in actis non erat.

1. Discuss some various readings in Juvenal's fifth Satire.
2. What are the modern names corresponding to Circeii, Rutupiae, and Tauromenium?
3. Quote some passages from Juvenal where he alludes to Virgil's writings.
4. Draw the character of Cicero, and refer to his letters in support of your statements.
5. How are the epistolary tenses used in Latin?
6. Give an account of the Roman Calendar.

Translate into Latin:—

I do not indeed know, but I certainly think that you are egregiously mistaken.

I think, O allies, that you obey the Roman people according to the letter only, not according to the spirit.

He did not indeed extinguish the fire, but he certainly checked it.

You act indeed in a friendly manner, but do not imagine, that the stain can be effaced.

You relate, indeed, very agreeable news, but do not say anything merely to please me.

Translate into Latin Elegiacs:—

Crush the seeds of disease whilst they are new,
And let your horse be stopped, when he is only beginning to go;
For delay gives strength; delay ripens the grapes,
And makes what was mere herbage crops of corn.
The tree which now affords a wide shade,
When first planted, was a twig;
Then it might have been plucked up by the hand,
Now immensely increased it stands by its own force.

Translate into Latin elegiacs:—*

As the good shepherd tends his fleecy care,
Seeks freshest pasture, and the purest air;
Explores the lost, the wandering sheep directs,
By day o'ersees them, and by night protects;
The tender lambs he raises in his arms,
Feeds from his hand, and in his bosom warms;
Thus shall mankind his guardian care engage,
The promis'd father of the future age.

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* The remainder of this paper was also used by the Third Year's Latin Class.

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Translate into Latin prose :—

The character of Achates suggests to us an observation we may often make on the intimacies of great men, who frequently choose their companions rather for the qualities of the heart than those of the head, and prefer fidelity in an easy, inoffensive, complying temper, to those endowments which make a much greater figure among mankind. I do not remember that Achates, who is represented as the first favourite, either gives his advice, or strikes a blow, through the whole Æneid.

NATURAL PHILOSOPHY.

1. How is it experimentally shown that water expands on approaching its freezing point?

2. Why are prisms of rock salt used in experiments on the refraction of heat?

3. Two similar vessels A and B are connected by a stop-cock, and contain water and its vapour, A is kept at temperature of 42° F. and the vapour in it has an elastic force of ·27 inches the stop-cock being closed B is raised to a temperature 98° F. its vapour having an elastic force $=1{\cdot}8$ inches the stop being now opened find the elastic force of the vapour in A.

4. How by means of a dipping needle could you ascertain the magnetic meridian?

5. In the same instrument how would you ascertain if the axis passed through the centre of gravity?

6. Describe the several parts of the induction coil.

7. Explain the principle of Wheatstone's bridge.

8. Describe some method of ascertaining the number of vibrations which produce a given musical note.

9. What do you mean by nodal points in a vibrating string? What is the relation between the tone emitted by a vibrating string having three nodes and its fundamental tone?

10. How do you distinguish between ordinary and extraordinary refraction of light?

MATHEMATICS.

Examiner, Professor NIVEN.

1. State and prove Newton's method of finding the area of a plane curve.

Find an expression for the area subtended at the focus of an ellipse by any arc one extremity of which is at an apse.

2. Prove that the sines of the angles of a spherical triangle are proportional to the sines of the opposite sides.

Show that the angles between the faces of a regular octohedron are each equal to the supplement of $\sec^{-1}3$.

3. Given two sides of a spherical triangle and the included angle show how to solve it, (1) by using appropriate formulæ, (2) by breaking it up into right-angled triangles.

4. Investigate Gregorie's series for evaluating π.

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Express in terms of multiple angles $(\sin\theta)^7$.

5. Find the distance between two points whose co-ordinates are given.

Determine the equations of the sides, and the area, of the triangle whose angles are $(2, -1)$ $(0, 3)$ $(\frac{3}{2}, -\frac{1}{2})$; also draw the triangle.

6. Find the equations of the tangent and normal to a parabola at any point.

Show that the angle between two tangents to a parabola is half the angle subtended at the focus by the chord of contact.

7. Find the equation of the pair of tangents to an ellipse from any point.

The locus of the point, the tangents from which to an ellipse cut a given diameter at equal distances from a fixed point in the same, is a parabola.

If the distance of the fixed point from the centre be a harmonic mean between the intercepts of the diameter by the two tangents, find the locus.

8. Find the limit, when $z = 1$, of $\frac{z^n - 1}{z - 1}$, and deduce the value of $\frac{dx^n}{dx}$.

Differentiate $\sqrt{\frac{x+a}{x-a}}$, $\frac{\sqrt{2}}{a}\cos\left(\frac{\pi}{4} + \tan^{-1}\frac{x}{a}\right)$, $\sin^{x-1}\theta - (a\sin\theta)^{1-x}$.

9. If when $x = a$, $\frac{f(x)}{\phi(x)}$ takes the form $\frac{0}{0}$, show how to find its real value.

Show that the limit, when $x = 1$, of $\frac{\sin^{x-1}\theta - (a\sin\theta)^{1-x}}{x-1} = \log(a\sin^2\theta)$.

10. Find the equation of the tangent to a curve given by its trilinear equation.

Find the envelope of the polar of a fixed point with regard to a system of confocal and coaxal parabolas.

11. Give a brief general discussion of the contact of curves, having regard more especially to the problem of the circle of curvature and evolute.

12. Determine the integrals of—

$$\frac{1}{\cos x},\quad x^2\cos x,\quad \frac{1}{x\sqrt{x^4-1}},\quad \frac{x^2}{(x+1)(x^3+1)}.$$

13. Find the surface generated by the revolution of a curve round a line in its own plane.

Ex.: A cycloid is made to revolve round the tangent at one of its ends.

Students, not candidates for prizes, may substitute the following for any of the questions above:—

(*a.*) Find the equations of the two lines which pass through the point $(+1, -2)$ and make angles of 45° with the axis of x.

(*b.*) Differentiate $x^2\sin x$, $\frac{x}{\sqrt{a^2-x^2}}$, $\sec^{-1}2x^2$, $\tan ax$.

(*c.*) Find the maximum value of $\frac{3x^4}{x^2+a^2}$

(*d.*) Integrate $x\sqrt{a^2-x^2}$, $\frac{1}{\sqrt{a^2-x^2}}$, $\frac{1}{4+x^2}$, $(1+x)^{\frac{1}{3}}$.

LOGIC.

Examiner, Professor READ.

1. Define "univocal," "common," "abstract," and "attributive" nouns.

2. Why is a discussion of the Heads of Predicables introduced into logic?

3. State and illustrate the Laws of Division.

4. What are infinite propositions? Is it necessary to consider them separately in logic?

5. How many kinds of opposition are strictly necessary in logic? Prove your answer.

6. Give the rules for the different kinds of conversion.

7. Define a syllogism.

8. Prove that if one premiss be negative the conclusion must be negative.

9. Special rules for third figure, with proofs.

10. Construct and reduce syllogisms in Camenes and Bokardo.

11. With the aid of Sir W. Hamilton's new kinds of propositions make a valid syllogism which shall violate both the special rules for the first figure. Reduce it to one of the ordinary forms.

12. Explain what is called obversion.

13. What is the true nature of Induction properly so called? What other forms of Reasoning have we included under it?

14. Explain the method of residues.

15. Are there any limits to the explanation of the Laws of Nature?

16. What are the uses of hypotheses in scientific investigation?

17. Upon what conditions does the validity of an argument from analogy depend, and what is the fallacy of False analogy?

18. What is meant by the composition of causes? How far does it interfere with the applicability of the experimental methods?

THIRD YEAR.

GREEK.

Examiner, Dr. RYALL.

Translate :—

THUCYDIDES, Book vii., c. 56.

οἱ δὲ Συρακόσιοι τόν τε λιμένα εὐθὺς παρέπλεον ἀδεῶς καὶ τὸ στόμα αὐτοῦ διενοοῦντο κλῄσειν, ὅπως μηκέτι, μηδ' εἰ βούλοιντο, λάθοιεν αὐτοὺς οἱ Ἀθηναῖοι ἐκπλεύσαντες. οὐ γὰρ περὶ τοῦ αὐτοὶ σωθῆναι μόνον ἔτι τὴν ἐπιμέλειαν ἐποιοῦντο, ἀλλὰ καὶ ὅπως ἐκείνους κωλύσωσι, νομίζοντες, ὅπερ ἦν, ἀπό τε τῶν παρόντων πολὺ σφῶν καθυπέρτερα τὰ πράγματα εἶναι, καὶ εἰ δύναιντο κρατῆσαι Ἀθηναίων τε καὶ τῶν ξυμμάχων καὶ κατὰ γῆν καὶ κατὰ θάλασσαν, καλὸν σφίσιν ἐς τοὺς Ἕλληνας τὸ ἀγώνισμα φανεῖσθαι· τούς τε γὰρ ἄλλους Ἕλληνας εὐθὺς τοὺς μὲν ἐλευθεροῦσθαι, τοὺς δὲ φόβου ἀπολύεσθαι (οὐ γὰρ ἔτι δυνατὴν ἔσεσθαι τὴν ὑπόλοιπον Ἀθηναίων δύναμιν τὸν ὕστερον ἐπενεχθησόμενον πόλεμον ἐνεγκεῖν), καὶ αὐτοὶ δόξαντες αὐτῶν αἴτιοι εἶναι ὑπό τε τῶν ἄλλων ἀνθρώπων καὶ ὑπὸ τῶν ἔπειτα πολὺ θαυμασθήσεσθαι. καὶ ἦν δὲ ἄξιος ὁ ἀγὼν κατά τε ταῦτα καὶ ὅτι οὐχὶ Ἀθηναίων μόνον περιεγίγνοντο, ἀλλὰ καὶ τῶν ἄλλων πολλῶν ξυμμάχων, καὶ οὐδ' αὐτοὶ αὖ μόνον, ἀλλὰ καὶ μετὰ

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τῶν ξυμβοηθησάντων σφίσιν, ἡγεμόνες τε γενόμενοι μετὰ Κορινθίων καὶ Λακεδαιμονίων, καὶ τὴν σφετέραν πόλιν ἐμπαρασχόντες προκινδυνεῦσαί τε καὶ τοῦ ναυτικοῦ μέγα μέρος προκόψαντες. ἔθνη γὰρ πλεῖστα δὴ ἐπὶ μίαν πόλιν ταύτην ξυνῆλθε, πλήν γε δὴ τοῦ ξύμπαντος λόγου τοῦ ἐν τῷδε τῷ πολέμῳ πρὸς τὴν Ἀθηναίων τε πόλιν καὶ Λακεδαμονίων.

1. Explain the full force of the construction ἀπὸ τῶν παρόντων.
2. Account for the use of the present tense in ἐλευθεροῦσθαι and ἀπολύεσθαι, and for the absence of ἄν before παρεγένοντο.
3. Explain the construction τοῦ ναυτικοῦ μεγὰ μέρος προκόψαντες.
4. Account for the introduction of γάρ in ἔθνη γὰρ πλεῖστα κ.τ.λ.
5. In ἐπὶ μίαν πολίν ταύτην the substitution of ταῦτα for ταύτην has been suggested: defend the reading in the text.
6. Explain λόγου in the last clause, and the exact force of the prepositions ἐπί and πρός.
7. Draw an outline map of Syracuse and its harbours; marking the positions of the following localities:—The Great Harbour; The Little Harbour; Ortygia; Plemmyrium; Olympiæum.

PLATO—*Protagoras.*

ἔτι δὴ λοιπὴ ἀπορία ἐστίν, ἣν ἀπορεῖς περὶ τῶν ἀνδρῶν τῶν ἀγαθῶν, τι δήποτε οἱ ἄνδρες οἱ ἀγαθοὶ τὰ μὲν ἄλλα τοὺς αὑτῶν υἱεῖς διδάσκουσιν, ἃ διδασκάλων ἔχεται, καὶ σοφοὺς ποιοῦσιν, ἣν δὲ αὐτοὶ ἀρετὴν ἀγαθοί, οὐδενὸς βελτίους ποιοῦσι. τούτου δὴ πέρι, ὦ Σώκρατες, οὐκέτι μῦθόν σοι ἐρῶ, ἀλλὰ λόγον. ὧδε γὰρ ἐννόησον· πότερον ἔστι τι ἕν, ἢ οὐκ ἔστιν, οὗ ἀναγκαῖον πάντας τοὺς πολίτας μετέχειν, εἴπερ μέλλει πόλις εἶναι; ἐν τούτῳ γὰρ αὕτη λύεται ἡ ἀπορία, ἣν σὺ ἀπορεῖς, ἢ ἄλλοθι οὐδαμοῦ. εἰ μὲν γὰρ ἔστι, καὶ τοῦτό ἐστι τὸ ἓν οὐ τεκτονικὴ οὐδὲ χαλκεία οὐδὲ κεραμεία, ἀλλὰ δικαιοσύνη καὶ σωφροσύνη καὶ τὸ ὅσιον εἶναι, καὶ συλλήβδην ἓν αὐτὸ προσαγορεύω εἶναι ἀνδρὸς ἀρετήν· εἰ τοῦτ' ἐστίν, οὗ δεῖ πάντας μετέχειν καὶ μετὰ τούτου πάντ' ἄνδρα, ἐάν τι καὶ ἄλλο βούληται μανθάνειν ἢ πράττειν, οὕτω πράττειν, ἄνευ δὲ τούτου μή, ἢ τὸν μὴ μετέχοντα καὶ διδάσκειν καὶ κολάζειν, καὶ παῖδα καὶ ἄνδρα καὶ γυναῖκα, ἕωσπερ ἂν κολαζόμενος βελτίων γένηται, ὃς δ' ἂν μὴ ὑπακούῃ κολαζόμενος καὶ διδασκόμενος, ὡς ἀνίατον ὄντα τοῦτον ἐκβάλλειν ἐκ τῶν πόλεων ἢ ἀποκτείνειν· εἰ οὕτω μὲν ἔχει, οὕτω δ' αὐτοῦ πεφυκότος οἱ ἀγαθοὶ ἄνδρες εἰ τὰ μὲν ἄλλα διδάσκονται τοὺς υἱεῖς, τοῦτο δὲ μή, σκέψαι ὡς θαυμασίως γίγνονται οἱ ἀγαθοί. ὅτι μὲν γὰρ διδακτὸν αὐτὸ ἡγοῦνται καὶ ἰδίᾳ καὶ δημοσίᾳ, ἀπεδείξαμεν· διδακτοῦ δὲ ὄντος καὶ θεραπευτοῦ τὰ μὲν ἄλλα ἄρα τοὺς υἱεῖς διδάσκονται, ἐφ' οἷς οὐκ ἔστι θάνατος ἡ ζημία, ἐὰν μὴ ἐπίστωνται, ἐφ' ᾧ δὲ ἥ τε ζημία θάνατος αὐτῶν τοῖς παισὶ καὶ φυγαὶ μὴ μαθοῦσι μηδὲ θεραπευθεῖσιν εἰς ἀρετήν, καὶ πρὸς τῷ θανάτῳ χρημάτων τε δημεύσεις καὶ ὡς ἔπος εἰπεῖν ξυλλήβδην τῶν οἴκων ἀνατροπαί, ταῦτα δ' ἄρα οὐ διδάσκονται οὐδ' ἐπιμελοῦνται πᾶσαν ἐπιμέλειαν;

1. Is διδάσκουσιν here employed in its usual sense?
2. ἓν αὐτὸ προσαγορεύω εἶναι κ.τ.λ. Explain αὐτὸ and εἶναι in this construction.
3. ὡς θαυμασίως γίγνονται οἱ ἀγαθοί. Point out the difficulty here, and give your own solution of it.
4. ἐφ' οἷς ἐφ ὧν. Show that both these constructions are admissible. What is the objection to Heindorf's correction, ἐφ' ᾧ?
5. ταῦτα δ' ἄρα οὐ διδάσκονται. What is the force of ἄρα here?

Sessional Examinations.

Translate into Greek :—

During the celebration of the mysteries, two young men of Acarnania, who were not initiated, unapprised of its being an offence against religion, entered the temple of Ceres along with the rest of the crowd : their discourse readily betrayed them by their asking some absurd questions : whereupon being carried before the presidents of the temple, although it was evident that they went in through mistake, yet they were put to death as if for a heinous crime. The Acarnanian nation made complaint to Philip of this barbarous and hostile act, and prevailed on him to grant them some aid, and to allow them to make war on the Athenians. So after ravaging the lands of Attica with fire and sword, they went back to Acarnania with booty of all kinds.

Translate :—

Aristophanes—*Aves*, vv. 753–789.

ΧΟ. *εἰ μετ' ὀρνίθων τις ὑμῶν, ὦ θεαταί, βούλεται*
διαπλέκειν ζῶν ἡδέως τὸ λοιπόν, ὡς ἡμᾶς ἴτω.
ὅσα γάρ ἐστιν ἐνθάδ' αἰσχρὰ τῷ νόμῳ κρατούμενα,
ταῦτα πάντ' ἐστὶν παρ' ἡμῖν τοῖσιν ὄρνισιν καλά.
εἰ γὰρ ἐνθάδ' ἐστὶν αἰσχρὸν τὸν πατέρα τύπτειν νόμῳ,
τοῦτ' ἐκεῖ καλὸν παρ' ἡμῖν ἐστιν, ἤν τις τῷ πατρὶ
προσδραμὼν εἴπῃ πατάξας, αἶρε πλῆκτρον, εἰ μάχει.
εἰ δὲ τυγχάνει τις ὑμῶν δραπέτης ἐστιγμένος,
ἀτταγᾶς οὗτος παρ' ἡμῖν ποικίλος κεκλήσεται.
εἰ δὲ τυγχάνει τις ὢν Φρὺξ μηδὲν ἧττον Σπινθάρου,
φρυγίλος ὄρνις ἐνθάδ' ἔσται, τοῦ Φιλήμονος γένους.
εἰ δὲ δοῦλός ἐστι καὶ Κὰρ ὥσπερ Ἐξηκεστίδης,
φυσάτω πάππους παρ' ἡμῖν, καὶ φανοῦνται φράτορες.
εἰ δ' ὁ Πεισίου προδοῦναι τοῖς ἀτίμοις τὰς πύλας
βούλεται, πέρδιξ γενέσθω, τοῦ πατρὸς νεοττίον·
ὡς παρ' ἡμῖν οὐδὲν αἰσχρόν ἐστιν ἐκπερδικίσαι.
τοιάδε, κύκνοι,
τιὸ τιὸ τιὸ τιὸ τιὸ τιὸ τιοτίγξ,
συμμιγῆ βοὴν ὁμοῦ
πτεροῖσι κρέκοντες ἴακχον Ἀπόλλω,
τιὸ τιὸ τιὸ τιοτίγξ,
ὄχθῳ ἐφεζόμενοι παρ' Ἕβρον ποταμόν.
τιὸ τιὸ τιὸ τιοτίγξ,
διὰ δ' αἰθέριον νέφος ἦλθε βοά·
πτῆξε δὲ ποικίλα φῦλά τε θηρῶν,
κύματά τ' ἔσβεσε νήνεμος αἴθρη,
τοτοτοτοτοτοτοτοτοτοτίγξ·
πᾶς δ' ἐπεκτύπησ' Ὄλυμπος·
εἷλε δὲ θάμβος ἄνακτας· Ὀλυμπιάδες δὲ μέλος Χάριτες Μοῦσαί τ' ἐπωλόλυξαν.
τιὸ τιὸ τιὸ τιοτίγξ.
οὐδέν ἐστ' ἄμεινον οὐδ' ἥδιον ἢ φῦσαι πτερά.
αὐτίχ' ὑμῶν τῶν θεατῶν εἴ τις ἦν ὑπόπτερος,

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εἶτα πεινῶν τοις χοροῖσι τῶν τραγῳδῶν ἤχθετο,
ἐκπτόμενος ἂν οὗτος ἠρίστησεν ἐλθὼν οἴκαδε,
κᾆτ' ἂν ἐμπλησθεὶς ἐφ' ἡμᾶς αὖθις αὖ κατέπτατο.

1. Comment on any expressions or allusions in the above extract which appear to require explanation.

2. To what part of the *Parabasis* does this passage belong, and of how many parts did the complete Parabasis consist?

3. In what metre are the commencing and concluding portions of this extract written? State its laws.

4. What, according to Süvern, are the general scope and object of the play, and who does he think are respectively indicated by "The Birds," "The Men," "The Gods," Peisthetairos, "The Epops," and Euelpides?

5. Explain the following allusions, according to the same authority:—(*a.*) ἐξῳδόμηται τὸ τεῖχος, v. 1124. (*b.*) ἐκ μέν γε Λιβύης ἧκον ὡς τρισμύριαι γέρανοι κ.τ.λ., v. 1136. (*c.*) ὄνομα δέ σοι τί ἐστι, πλοῖον, ἢ κυνῆ; v. 1203.

6. Who are meant by the plenipotentiaries, Heracles, Poseidon, and Triballos?

Translate into Iambic verse:—

The quality of mercy is not strained;
It droppeth, as the gentle rain from heaven,
Upon the place beneath: it is twice bless'd;
It blesseth him that gives and him that takes:
'Tis mightiest in the mightiest; it becomes
The throned monarch better than his crown.

LATIN.

Examiner, Professor LEWIS.

Translate:—

TACITUS—*Annals*, vi., 17.

Hinc inopia rei nummariae, commoto simul omnium aere alieno, et quia tot damnatis bonisque eorum divenditis signatum argentum fisco vel aerario attinebatur. Ad hoc senatus praescripserat, duas quisque fenoris partes in agris per Italiam conlocaret. Sed creditores in solidum appellabant, nec decorum appellatis minuere fidem. Ita primo concursatio et preces, dein strepere praetoris tribunal, eaque quae remedio quaesita, venditio et emptio, in contrarium mutari, quia feneratores omnem pecuniam mercandis agris condiderant. Copiam vendendi secuta vilitate, quanto quis obaeratior, aegrius distrahebant, multique fortunis provolvebantur; eversio rei familiaris dignitatem ac famam praeceps dabat, donec tulit opem Caesar disposito per mensas miliens sestertio, factaque mutuandi copia sine usuris per triennium, si debitor populo in duplum praediis cavisset. Sic refecta fides, et paulatim privati quoque creditores reperti. Neque emptio agrorum exercita ad formam senatus consulti, acribus, ut ferme talia, initiis, incurioso fine.

PLAUTUS—*Trinummus*, Act II., sc. i., 1–18.

Multas simitu res in meo corde vorso;
Multum in cogitando dolorem indipiscor;
Ego me concoquo et macero et defetigo;
Magister mihi exercitor animus hinc est.
Sed hoc non liquet neque satis cogitatum est,

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Sessional Examinations.

Utram potius harunc mihi artem expetessam,
Utram aetati agundae arbitrer firmiorem:
Amorine me an rei obsequi potius par sit;
Utra in parte plus sit voluptatis vitae
Ad aetatem agundam.
De hac re mihi satis haud liquet; nisi hoc sic faciam, opinor:
Utramque rem simul exputem; iudex sim reusque ad eam rem.
[Ita faciam! ita placet!]
Omnium primum Amoris artis eloquar quemadmodum expediant.
Nunquam Amor quemquam nisi cupidum hominem postulat se in
plagas coniicere;
Eos cupit, eos consectatur; subdole blanditur; ab re
Consulit, blandiloquentulus, harpago, mendax, cuppes, avarus,
Elegans, despoliator.

1. Relate the life of Agrippina, and notice the extant monuments which throw light on this subject.

2. How did the Romans reckon interest?

3. Describe the situation of Perusia, Torone, Surrentum, and Erythrae.

4. Si recludantur tyrannorum mentes, posse aspici laniatus et ictus. Illustrate these words by quoting or referring to some passages in Plato.

5. Explain the tetrameter trochaic catalectic.

6. Mention the chief political events which occurred during the life of Plautus.

7. What are the archaic forms for *si vis, cujus, posueris, irritaveris,* and *expugnaturum esse?*

8. Give an account of the plot of the *Trinummus.*

English Literature.

Examiner, Professor Armstrong.

1. Explain the differences both in spirit and in form between early Celtic and Teutonic poetry.

2. Give an account of the epic of *Beowulf.*

3. Name the principal works of Caedmon, Bede, Alcuin, and Alfred.

4. Explain the various ways in which the Norman ascendancy influenced the spirit, matter, and forms of English poetry.

5. Give a brief account of Boccaccio, and explain the nature of his influence upon the style and matter of Chaucer.

6. Give an outline of the *Knight's Tale.*

7. Sketch in brief outline the history of the English drama prior to the birth of Marlowe.

8. Give an account of Marlowe and his writings.

9. Describe the condition and progress of the stage during the lifetime of Shakespeare.

10. Comment upon the following passages, and state in what parts of the play they occur:—

(a) "His two chamberlains
Will I with wine and wassail so convince
That memory, the warder of the brain,
Shall be a fume, and the receipt of reason
A limbec only."

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Sessional Examinations.

(*b.*) "And pity, like a naked new-born babe,
Striding the blast, or heaven's cherubim, horsed
Upon the sightless couriers of the air,
Shall blow the horrid deed in every eye,
That tears shall drown the wind. I have no spur
To prick the sides of my intent, but only
Vaulting ambition that o'erleaps itself
And falls on the other."
(*c.*) "If trembling I inhabit then, protest me,
The baby of a girl."

11. Give a brief account of the life and writings of Spenser, and write an abstract of the events described in Canto II., of Booke I. of the *Faëry Queen.*

12. Sketch the life of Bacon, and enumerate his principal works.

13. Give an abstract of Book I. of *Paradise Lost*, commenting upon the qualities of Milton's dramatic power therein displayed.

HISTORY.

Examiner, Professor ARMSTRONG.

1. Give an account of the origin of the Merovingian, Carlovingian, and Capetian dynasties.

2. Describe the condition of France under the Merovingian kings.

3. Describe the principal features of the Feudal System.

4. Give an account of the operations of Frederic Barbarossa in Italy.

5. Give an account of the origin and operations of the Lombard League.

6. Sketch the principal changes which took place in the Florentine Constitution during the middle ages.

7. Describe the war of Chioggia.

8. Describe the principal features of the Governments of Genoa and Venice during the middle ages.

9. Account for the greater equality which existed among freemen in England under the Norman kings than appears to have existed on the Continent at the same period.

10. When, according to Hallam, may the history of the English Constitution be said to begin, and on what grounds does he determine the period?

11. When and under what circumstances does the first semblance of county and borough representation show itself in the history of the English Parliament?

12. What appear to you to be the direct advantages of a knowledge of mediæval history as a key to the history of modern times?

METAPHYSICS.

Examiner, Professor READ.

1. "Cogito ergo sum." Discuss this argument and the position it holds in the system of DesCartes.

2. "Instantiæ solitariæ," "instantiæ crucis." Explain these phrases, and their relation to Bacon's method.

3. By what arguments does Berkeley endeavour to show that the primary qualities of body are as subjective as the secondary?

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4. Was Locke wrong in commencing his Essay by an investigation into the origin of our Ideas?

5. State and criticise his account of the origin of our Idea of Space.

6. How far have the conclusions of Hume been anticipated?

7. What are Kant's conclusions as to the nature and certainty of human knowledge?

8. What, according to Kant, are the *à priori* elements in, and what the province of, the Reason as distinct from the sensory and the understanding?

9. What was really Reid's Theory of Perception?

10. Did he fully comprehend the nature of the Appeal to Common Sense?

11. What mental phenomena does Sir W. Hamilton explain by his doctrine of latent mental modification?

12. Explain the nature and relation to each other of the Conservative, the Reproductive, and the Representative faculties. Compare Sir W. Hamilton's explanation of them with that of any other writers.

13. Does the discussion of the grounds on which the law of causation rests belong to Logic or Metaphysics, and why?

14. State and examine Sir W. Hamilton's account of the origin of our empirical notion of Space.

POLITICAL ECONOMY.

Examiner, Professor READ.

1. Explain the economical theory of rent.

2. What are the circumstances which determine the general rate of wages?

3. What are the circumstances which determine the general rate of profit?

4. What regulates the general rate of interest; and say what relation, if any, the general rate of profit and of interest bear to each other.

5. State the leading provisions of the Bank Charter Act, and the object of each respectively.

6. State the nature of the real and nominal exchange, and the action of the former upon foreign commerce.

7. State and explain Mill's views on the equation of international values.

8. Compare the advantages and disadvantages of direct and indirect taxation.

9. Compare the system of raising money by funding with that of raising it by taxation within the year.

EXPERIMENTAL PHYSICS. (HONOR.)

1. How can the dilation of a liquid be ascertained by weighing in it at different temperatures a solid body whose coefficient of expansion is known?

2. What is meant by the regelation of ice? How do you explain it?

3. What is meant by the "coefficient of saturation" of air?

4. Knowing the temperature and pressure of the atmosphere, and also the temperature and pressure of the aqueous vapour existing in

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it, how would you ascertain the weight of vapour in a given volume of air?

5. Why is the velocity of sound in air affected by changes in the temperature and not by changes in pressure?

6. How could you compare the velocity of sound in glass with its velocity in air by observing the note produced by the longitudinal vibrations of a glass tube?

7. What arrangement would you use for depicting the solar spectrum on a screen; and how would you ascertain the distribution of heat in its several parts?

8. What is meant by the magnetic moment of a bar magnet?

9. A loop being introduced in a wire conducting a voltaic current, from knowing the resistance of each portion how would you ascertain the intensity in it?

10. Describe some method by which the length of a wave of light has been ascertained.

11. How would you distinguish circularly from plane polarized light?

12. Prove that the relative index of refraction of two media is represented by the ratio of the velocities of light in them.

CHEMISTRY.

Examiner, Professor MAXWELL SIMPSON.

PASS QUESTIONS.

1. What quantity of potassium hydrate would be required to convert 50 grammes of oil of vitriol into the neutral sulphate? (Atomic weight of potassium $=39$).

2. Explain, by equations, the reactions between argentic nitrate and hydrochloric acid; between sulphide of hydrogen and arsenious acid; between sulphide of hydrogen and acid ferric chloride; between potassium sulphate and barium chloride.

3. What gases are respectively formed when sulphur and carbon are burnt in air or oxygen? What relation exists between the volume of oxygen consumed and the volume of the compound formed in each case? Describe and explain other processes for the preparation of these gases, and give their most characteristic properties.

4. How would you distinguish carbon monoxide from hydrogen gas, and carbon dioxide from nitrogen gas?

5. Describe and explain two processes for the preparation of sulphide of hydrogen. State its composition by volume and by weight, and explain, by equations, its behaviour respectively towards chlorine, iodine, sublimate, silver nitrate, and acid solutions of ferrous and zinc sulphates.

6. How is amorphous phosphorus prepared, and in what respects does it differ from ordinary phosphorus?

7. What is the law of the diffusion of gases? How is the phenomenon of diffusion best exhibited?

8. Explain the binary theory of acids and salts.

9. How is potassium iodide prepared? Give equations, and explain how you would detect chlorine or iodic acid if present.

10. Explain the reactions that take place in the extraction of metallic lead from galena. Give the tests for lead.

11. Describe and explain the Clichy process for the preparation of white lead from the acetate.

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12. How are cuprous and cupric oxides prepared? Explain the action of hydrochloric acid upon each.

13. How are the two oxides of mercury and the corresponding chlorides prepared?

14. How may metallic mercury be obtained from any of its salts? Give the tests for the mercurous and mercuric salts.

15. How may methyl alcohol be prepared from methane (marsh gas)?

16. Describe and explain the continuous process for the preparation of ether. Write its constitutional formula, and explain how Williamson succeeded in forming mixed ethers.

17. How is aldehyde prepared? Name the body that is formed from it by the action of pentachloride of phosphorus. Write its constitutional formula and that of ethylene dichloride.

18. Name the alcohols from which acetic, glycollic, and oxalic acids are obtained by oxidation. Write the constitutional formulæ of these acids, and give their atomicity and basicity.

PRIZE QUESTIONS.

1. If the chlorine evolved from 50 grammes of manganese dioxide and excess of hydrochloric acid be passed into a solution of iodide of potassium, what quantity of iodine would be liberated? (Atomic weights, manganese =55, iodine =127).

2. Give two processes for the preparation of carbon monoxide. Enumerate the most characteristic properties of this gas, and explain how you would determine its composition by volume by means of the eudiometer.

3. How is ferrous sulphate prepared, and how may it be transformed into ferric sulphate? Write the formulæ of these salts, and describe the action of the following tests upon each:-

> Sulphide of hydrogen (solutions being acid); yellow and red prussiate of potash; sulpho-cyanide of potassium.

4. Give the atomic volumes of nitrogen gas, and the vapours of mercury, phosphorus, and arsenic. Give also the molecular volumes of hydrochloric acid gas, olefiant gas, and vapour of alcohol.

5. What is meant by electro-positive and electro-negative elements? Explain the electrolysis of iodide of potassium, sulphate of copper, and water. What is the relative amount of decomposition caused in different electrolytes, in a given time, by the passage of the same electric current?

6. What arguments may be adduced to prove that an *atom* of nitrogen weighs three times as much as an *equivalent* of nitrogen?

7. Antimony and arsenic are in the same solution; how would you separate and detect them by means of nascent hydrogen and silver nitrate? Give equations explanatory of the reactions.

8. Prepare oxide of antimony from the native sulphide, and tartar emetic from the oxide. Give equations.

9. How may malic acid be formed from olefiant gas? Explain the different steps of the processes by equations.

10. Describe and explain the preparation of zinc ethyl. What is its behaviour towards plumbic chloride, and what inference has been drawn from this reaction with regard to the atomicity of lead?

11. Give two general methods for the preparation of organic acids. Prepare propionic acid by both these methods, and explain reactions by equations.

12. How may methyl alcohol be prepared from methane (marsh gas) and glycerine from propane (hydride of propyl)? Give equations.

13. Write the formulæ of isopropyl and normal propyl alcohol on the assumption that they are derivations of carbinol (methyl alcohol). To what class of alcohols does the former belong, and by what reaction may it be distinguished from the latter?

NATURAL HISTORY.

Examiner, Professor REAY GREENE.

BOTANY.

1. Name the British orders of Thalamifloræ with indefinite stamens and parietal placentation.

2. What common native polypetalous plants, excluding Leguminosæ, have an irregular corolla?

3. Describe the pistil of the Compositæ as to—

Number of carpels,
Cohesion,
Adhesion,
Placentation.
Structure, and direction of ovule.

4. Indicate some monocotyledons with a double perianth, the calyx being plainly distinct from the corolla.

5. Enumerate the orders and higher groups of vascular cryptogams.

ZOOLOGY.

6. Name, without comment, the orders of mammals, distinguishing those which are absent from Europe.

7. Briefly sum up the distinctive peculiarities of the mammalian skull.

8. What birds are desmognathous? Explain the meaning of this term.

9. Explain the structure of the ankle-joint as it usually appears in reptiles. How do some reptiles, in this respect, approximate to birds?

10. Show the relations of the pallial cavity to the rest of the animal in the river-mussel, whelk, and cuttle-fish.

SCHOLARSHIP EXAMINATIONS.

LITERARY SCHOLARSHIPS—FIRST YEAR.

GREEK.

Examiner, Dr. RYALL.

Translate :—

XENOPHON—*Anabasis*, B. III., c. iv., 36.

ἐπεὶ δὲ ἐγίγνωσκον αὐτοὺς οἱ Ἕλληνες βουλομένους ἀπιέναι καὶ διαγγελλομένους, ἐκήρυξε τοῖς Ἕλλησι συσκευάζεσθαι ἀκουόντων τῶν πολεμίων. καὶ χρόνον μέν τινα ἐπέσχον τῆς πορείας οἱ βάρβαροι, ἐπειδὴ δὲ ὀψὲ ἐγίγνετο, ἀπῄεσαν· οὐ γὰρ ἐδόκει λύειν αὐτοῖς νυκτὸς πορεύεσθαι καὶ κατάγεσθαι ἐπὶ τὸ στρατόπεδον.

1. Account for the use of the participles *βουλομένους* and *διαγγελλομένους*.
2. What notion of time does the genitive *νυκτός* express?
3. For what other word is *λύειν* here used?
4. What is the force of the preposition *διά* in the compound *διαγγελλομένους*?
5. Derive *συσκευάσασθαι*, and parse *ἀπῄεσαν*.

LUCIAN.

διελθόντες δὲ καὶ τούτους, ἐς τὸ πεδίον ἐσβάλλομεν τὸ Ἀχερούσιον· εὑρίσκομέν τε αὐτόθι τοὺς ἡμιθέους τε, καὶ τὰς ἡρωΐνας, καὶ τὸν ἄλλον ὅμιλον τῶν νεκρῶν κατὰ ἔθνη καὶ φῦλα διαιτωμένους· τοὺς μὲν παλαιούς τινας, καὶ εὐρωτιῶντας, καί, ὥς φησιν Ὅμηρος, ἀμενηνούς· τοὺς δὲ νεαλεῖς, καὶ συνεστηκότας· καὶ μάλιστα τοὺς Αἰγυπτίους αὐτῶν διὰ τὸ πολυαρκὲς τῆς ταριχείας. τὸ μέντοι διαγινώσκειν ἕκαστον οὐ πάνυ τι ἦν ῥᾴδιον· ἅπαντες γὰρ ἀτεχνῶς ἀλλήλοις γίνονται ὅμοιοι, τῶν ὀστέων γεγυμνωμένων.

1. What is the force of the preposition *κατά* in the phrase *κατὰ ἔθνη καὶ φῦλα*?
2. Derive or decompound—*εὐρωτιάω, ἀμενηνός, πολυαρκής, νεαλεῖς, ἀτεχνῶς*; and distinguish the last word from *ἀτέχνως*.

When and where were Xenophon and Lucian respectively born, and in what dialect did each write? What was the *Κοινὴ διάλεκτος*?

Translate the following sentences into Greek :—

1. As they pass through this country they arrive at the river Mascas, a *πλέθρον* in width.
2. I advise you to put this man out of the way as speedily as possible, in order that it may be no longer necessary to guard him.
3. When it was day, they marched having the sun on the right, calculating that they would arrive at the villages at sunset.
4. Listen in return, in order that you may learn that you would not justly distrust either the king or me.

Translate :—

HOMER—*Iliad*, B. iv., vv. 155–175.

φίλε κασίγνητε, θάνατόν νύ τοι ὅρκι᾽ ἔταμνον,
οἶον προστήσας πρὸ Ἀχαιῶν Τρωσὶ μάχεσθαι.
ὥς σ᾽ ἔβαλον Τρῶες, κατὰ δ᾽ ὅρκια πιστὰ πάτησαν.

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οὐ μέν πως ἅλιον πέλει ὅρκιον, αἷμά τε ἀρνῶν
σπονδαί τ' ἄκρητοι καὶ δεξιαί, ᾗς ἐπέπιθμεν.
εἴπερ γάρ τε καὶ αὐτίκ' Ὀλύμπιος οὐκ ἐτέλεσσεν,
ἔκ τε καὶ ὀψὲ τελεῖ· σύν τε μεγάλῳ ἀπέτισαν,
σὺν σφῇσιν κεφαλῇσι, γυναιξί τε καὶ τεκέεσσιν.
εὖ γὰρ ἐγὼ τόδε οἶδα κατὰ φρένα καὶ κατὰ θυμόν.
ἔσσεται ἦμαρ ὅτ' ἄν ποτ' ὀλώλῃ Ἴλιος ἰρὴ
καὶ Πρίαμος καὶ λαὸς ἐϋμμελίω Πριάμοιο,
Ζεὺς δέ σφι Κρονίδης ὑψίζυγος, αἰθέρι ναίων,
αὐτὸς ἐπισσείῃσιν ἐρεμνὴν αἰγίδα πᾶσιν
τῆσδ' ἀπάτης κοτέων. τὰ μὲν ἔσσεται οὐκ ἀτέλεστα·
ἀλλά μοι αἰνὸν ἄχος σέθεν ἔσσεται, ὦ Μενέλαε,
αἴ κε θάνῃς καὶ μοῖραν ἀναπλήσῃς βιότοιο.
καί κεν ἐλέγχιστος πολυδίψιον Ἄργος ἱκοίμην·
αὐτίκα γὰρ μνήσονται Ἀχαιοὶ πατρίδος αἴης·
κὰδ δέ κεν εὐχωλὴν Πριάμῳ καὶ Τρωσὶ λίποιμεν
Ἀργείην Ἑλένην· σέο δ' ὀστέα πύσει ἄρουρα
κειμένου ἐν Τροίῃ ἀτελευτήτῳ ἐπὶ ἔργῳ.

1. Explain fully the following grammatical forms, and give their Attic equivalents:—ἐπέπιθμεν, κεφαλῇσι, τεκέεσσιν, ὀλώλῃ, ἐϋμμελίω, αἴης.
2. Derive or decompound:—ὅρκιον, σπονδή, ἄκρητος, πολυδίψιος.
3. Point out any instances of *tmesis* in the extract.
4. Explain the force of the preposition in the phrase ἀτελευτήτῳ ἐπὶ ἔργῳ.

EURIPIDES—*Phœnissæ*, vv. 1146–1161.

αἶ, αἶ, τί μ' οὐκ εἴασας ἐξ εὐαγγέλου
φήμης ἀπελθεῖν, ἀλλὰ μηνῦσαι κακά;
τὼ παῖδε τὼ σὼ μέλλετον, τολμήματα
αἴσχιστα, χωρὶς μονομαχεῖν παντὸς στρατοῦ,
λέξαντες Ἀργείοισι Καδμείοισί τε
εἰς κοινὸν, οἷον μήποτ' ὤφελον, λόγον.
Ἐτεοκλέης δ' ὑπῆρξ' ἀπ' ὀρθίου σταθεὶς
πύργου, κελεύσας σῖγα κηρῦξαι στρατῷ.
ἔλεξε δ'· ὦ γῆς Ἑλλάδος στρατηλάται
Δαναῶν τ' ἀριστεῖς, οἵπερ ἤλθετ' ἐνθάδε,
Κάδμου τε λαός, μήτε Πολυνείκους χάριν
ψυχὰς ἀπεμπολᾶτε μήθ' ἡμῶν ὕπερ.
ἐγὼ γὰρ αὐτὸς τόνδε κίνδυνον μεθεὶς
μόνος συνάψω συγγόνῳ τὠμῷ μάχην·
κἂν μὲν κτάνω τόνδ', οἶκον οἰκήσω μόνος,
ἡσσώμενος δὲ τῷδε παραδώσω πόλιν.

1. Supply the ellipsis before μηνῦσαι in the second line.
2. Explain the construction of οἷον μήποτ' ὤφελον. What difference would it make in the meaning if οὔποτε were substituted for μήποτε?
3. ἀπ' ὀρθίου σταθεὶς πύργου. What other preposition might be expected instead of ἀπό? Explain the construction in the text.

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4. What is the literal meaning of ἀπεμπολᾶτε?

5. Point out the most important *cæsuras* in the first three lines of the extract.

Herodotus, B. ii., c. 147.

ὅσα δὲ οἵ τε ἄλλοι ἄνθρωποι καὶ Αἰγύπτιοι λέγουσι ὁμολογέοντες τοῖσι ἄλλοισι κατὰ ταύτην τὴν χώρην γενέσθαι, ταῦτ᾽ ἤδη φράσω· προσέσται δέ τι αὐτοῖσι καὶ τῆς ἐμῆς ὄψιος. Ἐλευθερωθέντες Αἰγύπτιοι μετὰ τὸν ἱρέα τοῦ Ἡφαίστου βασιλεύσαντα (οὐδένα γὰρ χρόνον οἷοί τε ἦσαν ἄνευ βασιλέος διαιτᾶσθαι) ἐστήσαντο δυώδεκα βασιλέας, δυώδεκα μοίρας δασάμενοι Αἴγυπτον πᾶσαν. οὗτοι ἐπιγαμίας ποιησάμενοι ἐβασίλευον νόμοισι τοισίδε χρεόμενοι, μήτε καταιρέειν ἀλλήλους μήτε πλέον τι δίζησθαι ἔχειν τὸν ἕτερον τοῦ ἑτέρου, εἶναί τε φίλους τὰ μάλιστα. τῶνδε δὲ εἵνεκεν τοὺς νόμους τούτους ἐποιεῦντο, ἰσχυρῶς περιστέλλοντες· ἐκέχρηστό σφι κατ᾽ ἀρχὰς αὐτίκα ἐνισταμένοισι ἐς τὰς τυραννίδας τὸν χαλκέῃ φιάλῃ σπείσαντα αὐτῶν ἐν τῷ ἱρῷ τοῦ Ἡφαίστου, τοῦτον ἁπάσης βασιλεύσειν Αἰγύπτου.

1. Enumerate the Greek dialects, and mention some of the principal authors in each. Did Herodotus write in his native dialect

2. Point out the principal Ionicisms in the above extract, and give their Attic equivalents.

By what Asiatic monarch, and in what year was Egypt conquered; and how long had it existed previously as a single united kingdom?

Latin.

Examiner, Professor Lewis.

1. What are the principal events narrated in the fifth book of Cæsar's Gallic War?
2. State the rules for the Sapphic stanza.
3. By what conjunctions are verbs of *hindering* followed?
4. Give an account of the Social War.
5. What are the perfects and supines of seco, caveo, mulceo, bibo, pasco, and tondo.

Re-translate into Latin:—

He proceeds to observe that the conspirators must needs be under a divine and judicial infatuation, and could never have trusted affairs and letters of such moment to men barbarous and unknown to them, if the Gods had not confounded their senses: and that the ambassadors of a nation so disaffected, and so able and willing to make war upon them, should slight the hopes of dominion, and the advantageous offers of men of Patrician rank must needs be the effect of a Divine interposition; especially when they might have gained their ends, not by fighting, but by holding their tongues.

The English Language.

Examiner, Professor Armstrong.

HISTORY AND GRAMMAR OF THE LANGUAGE.

1. Give a brief account of the races occupying the soil of Great Britain prior to the year 1066.
2. What is the original language of the Francs called, and to what stock of languages did it belong?

To what stocks do Norman-French and modern French belong respectively?

3. Explain the nature of the changes which took place in Anglo-Saxon between the period of the Norman Conquest and the reign of Edward III.

4. Give the several theories cited by Dr. Craik as to the causes of these changes.

5. Mention some of the peculiarities of verbal inflections which distinguished the northern and southern dialects of English during the Fourteenth Century.

6. State Mr. Guest's suppositions as to the systems employed at different periods to mark the quantity (or quality) of English words. Give the substance of Dr. Craik's comment on these suppositions.

7. Give an account of Ingulfus, and *Ingulfi Croylandensis Historia.*

8. Give examples of words in the English language of Celtic, Classical, Scandinavian, and Norman origin, representing successive periods of foreign influence.

9. At what period and under what circumstances did the English language become subjected to the influence of the Langue d'Oc?

10. Paraphrase the following passages in modern English prose; mention from what poems they are extracted, and what periods in the history of the language they represent; and state what you know of their authors:—

(*a.*) "Trew king, that sittes in trone,
Unto the I tell my tale,
And unto the I bid a bone,
For thou ert bnte of all my bale:
Als thou made midelerd and the mone,
And bestes and fowles grete and smale,
Unto me sond thi socore sone,
And dresce my dédes in this dale."

(*b.*) "Hit com him on mode,
And on his mern thonke,
Thet he wolde of Engle
Tha ædhelæn tellen;
Wat beo ihoten weoren,
And wonene heo comen,
Tha Englene londe
Ærest abten
Æfter than flode,
The from Drihtene com."

(*c.*) "A joly popper bar he in his pouche;
There was no man for perel durst him touche;
A Scheffeld thwitel bar he in his hose;
Round was his face, and camois was his nose;
As pyled as an ape was his skulle;
He was a market-beter at the fulle."

COMPOSITION.

Write a short critique of any poem or of any novel with which you are familiar.

HISTORY AND GEOGRAPHY.

Examiner, Professor ARMSTRONG.

HISTORY OF GREECE AND ROME.

1. Describe the conspiracy of Harmodius and Aristogeiton.
2. Explain the nature of the Reforms of Clisthenes.
3. Give a brief history of the Ionic Revolt.
4. Give an account of the Sicilian Expedition.
5. Write an account of the campaign of Pyrrhus in Italy.
6. Narrate the history of the Numantian War.
7. Sketch briefly the career of Jugurtha.
8. Give an outline of the principal events of the Mithridatic Wars.

ANCIENT AND MODERN GEOGRAPHY.

1. Where were the following towns, and what are their modern names?—Olisipo, Callo, Narbo, Forum Julii, Avenio, Portus Venetus, Bononia, Brundusium, Tauromenium.

2. Name the ancient divisions of Italy and of Britain.

3. Give the ancient names of the principal gulfs and bays of the Mare Internum.

4. Where are the following mountains, lakes, islands, and towns situated?—The Cordilleras, the Sierra Morena, the Neilgherries, the Vosges, the Carpathians, the Caucasus; Lake Tanganyika, Lake Onega, Lago di Garda, Loch Katrine, Lake Wallenstadt, Lake Michigan; Ischia, Java, the Shetland Islands, Jamaica, the Windward Islands, Zante; Aberdeen, Preston, Carlisle, Birmingham, Milford, Peterborough, Belfast, Christiansand, Prague, Jaffa, Chicago, Yokohama, Agra, Ispahan.

SECOND YEAR.

GREEK.

Examiner, Dr. RYALL.

Translate the following passages from the *Iliad*:—

(*a*.) ὤ μοι, ἀπειλητῆρες, Ἀχαιΐδες, οὐκέτ᾽ Ἀχαιοί·
ἦ μὲν δὴ λώβη τάδε γ᾽ ἔσσεται αἰνόθεν αἰνῶς,
εἰ μή τις Δαναῶν νῦν Ἕκτορος ἀντίος εἶσιν.
ἀλλ᾽ ὑμεῖς μὲν πάντες ὕδωρ καὶ γαῖα γένοισθε,
ἥμενοι αὖθι ἕκαστοι ἀκήριοι, ἀκλεὲς αὔτως·
τῷδε δ᾽ ἐγὼν αὐτὸς θωρήξομαι· αὐτὰρ ὕπερθεν
νίκης πείρατ᾽ ἔχονται ἐν ἀθανάτοισι θεοῖσιν.

B. vii., vv. 96-103.

(*b*.) βάσκ᾽ ἴθι, Ἶρι ταχεῖα, πάλιν τρέπε μηδ᾽ ἔα ἄντην
ἔρχεσθ᾽· οὐ γὰρ καλὰ συνοισόμεθα πτόλεμόνδε.
ὧδε γὰρ ἐξερέω, τὸ δὲ καὶ τετελεσμένον ἔσται·
γυιώσω μέν σφωῒν ὑφ᾽ ἅρμασιν ὠκέας ἵππους,
αὐτὰς δ᾽ ἐκ δίφρου βαλέω κατά θ᾽ ἅρματα ἄξω·

Appendix E.

Scholarship Examinations.

οὐδέ κεν ἐς δεκάτους περιτελλομένους ἐνιαυτοὺς
ἕλκε' ἀπαλθήσεσθον, ἅ κεν μάρπτῃσι κεραυνός·
ὄφρ' εἰδῇ γλαυκῶπις, ὅτ' ἂν ᾧ πατρὶ μάχηται.
Ἥρῃ δ' οὔτι τόσον νεμεσίζομαι οὐδὲ χολοῦμαι·
αἰεὶ γάρ μοι ἔωθεν ἐνικλᾶν ὅ ττι νοήσω.

B. viii., vv. 399–408.

(*c.*) ἔστι δέ μοι μάλα πολλά, τὰ κάλλιπον ἐνθάδε ἔρρων·
ἄλλον δ' ἐνθένδε χρυσὸν καὶ χαλκὸν ἐρυθρὸν
ἠδὲ γυναῖκας ἐϋζώνους πολιόν τε σίδηρον
ἄξομαι, ἅσσ' ἔλαχόν γε· γέρας δέ μοι, ὅσπερ ἔδωκεν,
αὖτις ἐφυβρίζων ἕλετο κρείων Ἀγαμέμνων
Ἀτρείδης.—τῷ πάντ' ἀγορευέμεν, ὡς ἐπιτέλλω,
ἀμφαδὸν, ὄφρα καὶ ἄλλοι ἐπισκύζωνται Ἀχαιοὶ,
εἴ τινά που Δαναῶν ἔτι ἔλπεται ἐξαπατήσειν,
αἰὲν ἀναιδείην ἐπιειμένος.

B. ix., vv. 364–372.

(*d.*) εἰ μὲν δὴ ἕταρόν γε κελεύετέ μ' αὐτὸν ἑλέσθαι,
πῶς ἂν ἔπειτ' Ὀδυσῆος ἐγὼ θείοιο λαθοίμην,
οὗ πέρι μὲν πρόφρων κραδίη καὶ θυμὸς ἀγήνωρ
ἐν πάντεσσι πόνοισι, φιλεῖ δέ ἑ Παλλὰς Ἀθήνη;
τούτου γ' ἑσπομένοιο καὶ ἐκ πυρὸς αἰθομένοιο
ἄμφω νοστήσαιμεν, ἐπεὶ πέρι οἶδε νοῆσαι.

B. x., vv. 242–247.

(*a.*) 1. Explain the expression *αἰνόθεν αἰνῶς*. 2. Distinguish the two forms of *εἰσιν*. 3. Derive *ἀκήριος*.

(*b.*) 1. Point out an instance of *λιτότης* in this extract. 2. Show from this passage a difference between Homer and the Tragic poets, in the elision of final syllables. 3. Explain the origin of the form *βαλέω*. 4. Explain the government of *ἅ* in v. 405, and give the primitive meaning of *μάρπτω*. 5. Give the Attic form and derivation of *ἐνικλᾶν*.

(*c.*) 1. Write down the 1 fut., 1 aor., and perf. of *ἔρρω*, and give its primitive meaning. 2. Explain the grammatical forms *κάλλιπον* and *ἐπιειμένος*. 3. Derive *ἀμφαδόν* and give its original form.

(*d.*) 1. Distinguish between the two uses of *πέρι* in this passage. 2. What Greek drama derives its plot from this book of Homer?

EURIPIDES—*Medea*, vv. 1144–1165.

δέσποινα δ' ἣν νῦν ἀντὶ σοῦ θαυμάζομεν,
πρὶν μὲν τέκνων σῶν εἰσιδεῖν ξυνωρίδα,
πρόθυμον εἶχ' ὀφθαλμὸν εἰς Ἰάσονα·
ἔπειτα μέντοι προυκαλύψατ' ὄμματα
λευκήν τ' ἀπέστρεψ' ἔμπαλιν παρηίδα,
παίδων μυσαχθεῖσ' εἰσόδους· πόσις δὲ σὸς
ὀργὰς ἀφῄρει καὶ νεάνιδος χόλον
λέγων τάδ'· οὐ μὴ δυσμενὴς ἔσει φίλοις,
παύσει δὲ θυμοῦ καὶ πάλιν στρέψεις κάρα,
φίλους νομίζουσ' οὕσπερ ἂν πόσις σέθεν,
δέξει δὲ δῶρα καὶ παραιτήσει πατρὸς

Appendix E.

Scholarship Examinations.

φυγὰς ἀφεῖναι παισὶ τοῖσδ' ἐμὴν χάριν; 1155
ἡ δ' ὡς ἐσεῖδε κόσμον, οὐκ ἠνέσχετο,
ἀλλ' ᾔνεσ' ἀνδρὶ πάντα· καὶ πρὶν ἐκ δόμων
μακρὰν ἀπεῖναι πατέρα καὶ παῖδας σέθεν,
λαβοῦσα πέπλους ποικίλους ἠμπίσχετο,
χρυσοῦν τε θεῖσα στέφανον ἀμφὶ βοστρύχοις 1160
λαμπρῷ κατόπτρῳ σχηματίζεται κόμην,
ἄψυχον εἰκὼ προσγελῶσα σώματος.
κἄπειτ' ἀναστᾶσ' ἐκ θρόνων διέρχεται
στέγας, ἁβρὸν βαίνουσα παλλεύκῳ ποδί,
δώροις ὑπερχαίρουσα, πολλὰ πολλάκις 1165
τένοντ' ἐς ὀρθὸν ὄμμασι σκοπουμένη.

1. Give the primary meaning and derivation of *ξυνωρίς*.
2. Why is *ἀφῄρει*, v. 1150, in the imperfect tense?
3. Distinguish between *οὐ μή* in interrogative and in merely negative sentences.
4. *ἐμὴν χάριν*. What word is here understood?
5. Supply the ellipsis after *οὕσπερ ἄν*, v. 1153.
6. Give instances in the above passage of the *hepthemimeral*, *penthemimeral*, and *quasi cæsuras*.

How far do Epic and Tragic poetry agree with each other; and in what respects do they differ?

Translate :—

HERODOTUS, B. ix., cc. 118, 119.

οἱ δὲ ἐν τῷ τείχεϊ ἐς πᾶν ἤδη κακοῦ ἀπιγμένοι ἦσαν, οὕτω ὥστε τοὺς τόνους ἕψοντες τῶν κλινέων ἐσιτέοντο. ἐπεί τε δὲ οὐδὲ ταῦτα ἔτι εἶχον, οὕτω δὴ ὑπὸ νύκτα οἴχονται ἀποδράντες οἵ τε Πέρσαι καὶ ὁ Ἀρταΰκτης καὶ ὁ Οἰόβαζος, ὄπισθε τοῦ τείχεος καταβάντες, τῇ ἦν ἐρημότατον τῶν πολεμίων. ὡς δὲ ἡμέρη ἐγένετο, οἱ Χερσονησῖται ἀπὸ τῶν πύργων ἐσήμηναν τοῖσι Ἀθηναίοισι τὸ γεγονὸς καὶ τὰς πύλας ἄνοιξαν. τῶν δὲ οἱ μὲν πλεῦνες ἐδίωκον, οἱ δὲ τὴν πόλιν εἶχον. Οἰόβαζον μέν νυν ἐκφυγόντα ἐς τὴν Θρηΐκην Θρήϊκες Ἀψίνθιοι λαβόντες ἔθυσαν Πλειστώρῳ ἐπιχωρίῳ θεῷ τρόπῳ τῷ σφετέρῳ, τοὺς δὲ μετ' ἐκείνου ἄλλῳ τρόπῳ ἐφόνευσαν. οἱ δὲ ἀμφὶ τὸν Ἀρταΰκτην ὕστεροι ὁρμηθέντες φεύγειν, ὡς κατελαμβάνοντο ὀλίγον ἐόντες ὑπὲρ Αἰγὸς Ποταμῶν, ἀλεξόμενοι χρόνον ἐπὶ συχνὸν, οἱ μὲν ἀπέθανον, οἱ δὲ ζώοντες ἐλάμφθησαν. καὶ συνδήσαντές σφεας οἱ Ἕλληνες ἤγαγον ἐς Σηστὸν, μετ' αὐτῶν δὲ καὶ Ἀρταΰκτην δεδεμένον, αὐτόν τε καὶ τὸν παῖδα αὐτοῦ.

1. Point out the peculiarly Ionic grammatical forms and constructions in the above passage.
2. Parse *ἕψοντες*, *ἀποδράντες*, *ἐλάμφθησαν*, and give the principal parts of each verb.
3. *τοὺς μετ' ἐκείνου*—*οἱ ἀμφὶ τὸν Ἀρταΰκτην*. Distinguish between these two forms of expression.
4. Describe accurately the positions of the places mentioned in the extract.

Plato—*Apology.*

τοῖς δὲ ἀποψηφισαμένοις ἡδέως ἂν διαλεχθείην ὑπὲρ τοῦ γεγονότος τουτουὶ πράγματος, ἐν ᾧ οἱ ἄρχοντες ἀσχολίαν ἄγουσι καὶ οὔπω ἔρχομαι οἷ ἐλθόντα με δεῖ τεθνάναι. ἀλλά μοι, ὦ ἄνδρες, παραμείνατε τοσοῦτον χρόνον· οὐδὲν γὰρ κωλύει διαμυθολογῆσαι πρὸς ἀλλήλους, ἕως ἔξεστιν. ὑμῖν γὰρ ὡς φίλοις οὖσιν ἐπιδεῖξαι ἐθέλω τὸ νυνί μοι ξυμβεβηκὸς τί ποτε νοεῖ. ἐμοὶ γάρ, ὦ ἄνδρες δικασταί—ὑμᾶς γὰρ δικαστὰς καλῶν ὀρθῶς ἂν καλοίην—θαυμάσιόν τι γέγονεν. ἡ γὰρ εἰωθυῖά μοι μαντικὴ ἡ τοῦ δαιμονίου ἐν μὲν τῷ πρόσθεν χρόνῳ παντὶ πάνυ πυκνὴ ἀεὶ ἦν καὶ πάνυ ἐπὶ σμικροῖς ἐναντιουμένη, εἴ τι μέλλοιμι μὴ ὀρθῶς πράξειν· νυνὶ δὲ ξυμβέβηκέ μοι, ἅπερ ὁρᾶτε καὶ αὐτοί, ταυτὶ ἅ γε δὴ οἰηθείη ἄν τις καὶ νομίζεται ἔσχατα κακῶν εἶναι. ἐμοὶ δὲ οὔτε ἐξιόντι ἕωθεν οἴκοθεν ἠναντιώθη τὸ τοῦ θεοῦ σημεῖον, οὔτε ἡνίκα ἀνέβαινον ἐνταυθοῖ ἐπὶ τὸ δικαστήριον, οὔτ' ἐν τῷ λόγῳ οὐδαμοῦ μέλλοντί τι ἐρεῖν· καίτοι ἐν ἄλλοις λόγοις πολλαχοῦ δή με ἐπέσχε λέγοντα μεταξύ.

1. Who are meant by *οἱ ἄρχοντες*?
2. Explain the construction of the words *ἐπιδεῖξαι ἐθέλω τὸ νυνί μοι ξυμβεβηκὸς τί ποτε νοεῖ.*
3. Explain the terms *δικαστής* and *δικαστήριον.*
4. In what year was Socrates born? Give some account of his early life and studies. What do you understand by the Socratic method of teaching?

Translate into Greek:—

The hatred against Socrates, as an enemy of the democracy, did not dare to display itself previously to the banishment of Alcibiades, the powerful friend of Socrates, who still remained his friend even after he had given up his intimate acquaintance. Besides this, during the Peloponnesian war the attention of the people was engaged by more important affairs than the accusation of Socrates, and his enemies who belonged for the most part to the democratical party, had not sufficient influence during the government of the Thirty, to attempt anything against him.

Latin.

Examiner, Professor Lewis.

Translate:—

Livy, Book iv., c. 5.

Denique utrum tandem populi Romani an vestrum summum imperium est? Regibus exactis utrum vobis dominatio an omnibus aequa libertas parta est? Oportet licere populo Romano, si velit, iubere legem: an, ut quaeque rogatio promulgata erit, vos dilectum pro poena decernetis? Et, simul ego tribunus vocare tribus in suffragium coepero, tu statim consul sacramento iuniores adiges et in castra educes, et minaberis plebi, minaberis tribuno? quid, si non, quantum istae minae adversus plebis consensum valerent, bis iam experti essetis? Scilicet, quia nobis consultum volebatis, certamine abstinuistis: an ideo non est dimicatum, quod, quae pars firmior, eadem modestior fuit? nec nunc erit certamen, Quirites. Animos vestros illi temptabunt semper, vires non experientur.

Appendix E.

Scholarship Examinations.

Translate into Latin Hexameters :—

The cattle mourn in corners, where the fence
Screens them, and seem half petrified to sleep
In unrecumbent sadness. There they wait
Their wonted fodder; not like hung'ring man,
Fretful if unsupplied; but silent, meek,
And patient of the slow-pac'd swain's delay.
He from the stack carves out the accustom'd load,
Deep-plunging, and again deep-plunging oft,
His broad keen knife into the solid mass:
Smooth as a wall the upright remnant stands.

Translate into Latin prose :—

I had been often told that the rock before me was the haunt of a Genius, and that several had been entertained with music who had passed by it, but never heard that the musician had before made himself visible. When he had raised my thoughts by those enchanting airs which he played, to taste the pleasures of his conversation, as I looked upon him as one astonished, he beckoned to me, and by the waving of his hand directed me to approach the place where he sat. I drew near with that reverence which is due to a superior nature; and as my heart was entirely subdued by the captivating strains I had heard, I fell down at his feet and wept.

SCIENCE SCHOLARSHIPS—FIRST YEAR.

MATHEMATICS.

Examiner, Professor NIVEN.

FIRST PAPER.*

1. Prove that the greater side of every triangle has the greater angle opposite to it.

If AD bisecting the angle A meet BC in D, then 2DA is less than AB+AC.

2. Prove that the sum of all the angles of a polygon together with four right angles is equal to twice as many right angles as the figure has sides.

Verify this theorem with reference to the hexagon in question 9.

3. If AB be divided equally in C and unequally in D, then the sum of the squares on AD, DB is double the sum of the squares on AC, CD. Show this.

The sum of the squares of the perpendiculars from any point on a circle upon the sides of an inscribed rectangle is constant.

4. In equal circles equal arcs subtend equal angles.

5. If the exterior angles of a triangle be bisected and the points where the bisectors meet the circumscribing circle be joined, the triangle so formed will be equiangular with the triangle formed by joining the points where the inscribed circle touches the sides of the triangle.

6. If a line be drawn through the extremity of the diameter of a circle perpendicular to it, it must touch the circle.

7. If two circles cut in A,B, and from any point P on one lines PA, PB be drawn cutting the other in Q,R, show that QR is of constant

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* The University Prizes in Geometry are awarded fo answering in this Paper.

length whatever be the position of P, and that the triangle formed by drawing tangents at PQR is isosceles, and has angles of invariable size. *Appendix E.* Scholarship Examinations.

8. In a given circle inscribe a triangle equiangular to a given triangle.

9. If through the angles of a triangle lines be drawn parallel to the distances of the centre of the circumscribed circle from the angles, they will form an equilateral hexagon whose angles are 2A, 2B, 2C, 2A, 2B, 2C.

10. Find a mean proportional to two given lines.

11. If in question 7, the tangents at P, R meet in T then PT : AP :: BR : AB.

SECOND PAPER.

1. Define a vulgar fraction and show that its value is unchanged by multiplying both numerator and denominator by the same number.

Sum $-\frac{11}{35}+\frac{17}{49}-\frac{8}{25}+\frac{54}{147}$, and reduce the result to a decimal.

2. A manufacturer starts business by purchasing premises and machinery for £6,500, half of which he pays by borrowing money at $4\frac{1}{2}$ per cent. His annual purchases amount to £12,550, and the wages of his 45 workmen are at an average rate of 25*s.* per week. Allowing 1 per cent. on the machinery for yearly repairs, what rate per cent. on his yearly purchases must he make to realize an income of £900 a year?

3. Divide $x^{\frac{2}{3}}+4a^{\frac{1}{3}}x^{\frac{1}{3}}+16a^{\frac{2}{3}}$ by $x^{\frac{1}{3}}+2a^{\frac{1}{6}}x^{\frac{1}{6}}+4a^{\frac{1}{3}}$, and factorize $4x^2-12xy+8y^2$ and $x^3+1-4(x^2-1)+2(x+1)$.

4. If $a=bc+\sqrt{\overline{1-b^2}\,.\,\overline{1-c^2}}\,.\,x$, $b=ca+\sqrt{\overline{1-c^2}\,.\,\overline{1-a^2}}\,.\,y$, $c=ab+\sqrt{\overline{1-a^2}\,.\,\overline{1-b^2}}\,.\,z$; show $x=-yz+\sqrt{\overline{1-y^2}\,.\,\overline{1-z^2}}\,.\,a$, $y=-zx+\sqrt{\overline{1-z^2}\,.\,\overline{1-x^2}}\,.\,b$, $z=-xy+\sqrt{\overline{1-x^2}\,.\,\overline{1-y^2}}\,.\,c$.

5. $\frac{a+b+c}{(a+b)(b+c)(c+a)}+\frac{-a+b+c}{(b+c)(a-b)(a-c)}+\frac{a-b+c}{(a+c)(a-b)(c-b)}+\frac{a+b-c}{(a+b)(a-c)(b-c)}=0$; prove this.

6. Solve the equations—

$$x-\tfrac{1}{3}\{x-\tfrac{1}{5}(x-70)\}=3.$$

$$\frac{x+3}{2x-3}+\frac{x-2}{3x+2}=-1.$$

$$\left.\begin{aligned}(x+a)^2-(y+b)^2&=\overline{+b^2}\\ x+y&=a+b\end{aligned}\right\}.$$

7. Define an arithmetic series and find the sum of n terms.

Sum to n terms the series of which the first term is $(n-1)^3-1$ and common difference $6n$.

Sum also the series $\frac{1}{2}+\frac{1}{3}+\frac{2}{9}+$ &c. to infinity.

8. If $a:b::c:d$, then $(a-b)^2(c+d)^2=(a^2-b^2)(c^2-d^2)$.

9. Define the trigonometrical functions, and express the functions of $180°-A$ in terms of those of A.

Find all the functions of 120°.

10. Investigate expressions for $\sin 2\theta$, $\cos 2\theta$ in terms of functions of the angle θ.

11. Defactorize $\cos\alpha\cos\beta\cos\gamma$.

Appendix E.

Scholarship Examinations.

Show that when $\alpha+\beta+\gamma=\frac{\pi}{2}$,

$$\sqrt{2}\cos\alpha\cos\beta\cos\gamma=\cos\left(\frac{\pi}{4}-\alpha\right)\cos\left(\frac{\pi}{4}-\beta\right)\cos\left(\frac{\pi}{4}-\gamma\right)-\sin\left(\frac{\pi}{4}-\alpha\right)\sin\left(\frac{\pi}{4}-\beta\right)\sin\left(\frac{\pi}{4}-\gamma\right).$$

12. In a plane triangle find $\cos\frac{A}{2}$ in terms of the sides.

If p, q, r be the perpendiculars from any point upon two straight lines enclosing an angle A and the bisector of the angle, show that

$$r=\frac{p-q}{2\cos\frac{A}{2}}.$$

SECOND YEAR.

MATHEMATICS.

Examiner, Professor NIVEN.

1. State the principal propositions given by Euclid upon tangents to a circle, and prove any one of them. What other theory of tangents can be constructed?

2. Sketch a general theory of similar plane figures. Show that the points of intersection of common tangents to two circles are centres of similitude.

If two escribed circles E_1, E_2 of a triangle touch A B on the same side in Q_1Q_2, the point where Q_2C meets E_1 is at the extremity of the diameter of E_1 through Q_1, and the point where Q_1C meets E_2 is at the extremity of the diameter of E_2 through Q_2.

[The triangle referred to in the question is A B C.]

3. If α and β are the roots of $x^2+px+q=0$, show that $\alpha+\beta=-p$, and $\alpha\beta=q$.

Solve the equation—

$$\left(\frac{x^2-ax+a^2}{x^2+ax+a^2}\right)^3=\frac{a-2x}{a+2x}.$$

4. State and prove the binomial theorem for a positive integral exponent.

Sum the series—

$$1+2\cdot n+3\cdot\frac{n\cdot\overline{n-1}}{1\cdot2}+\&c.$$

$$1-2\cdot n+3\cdot\frac{n\cdot\overline{n-1}}{1\cdot2}\pm\&c.$$

5. Assuming the expansion of e^x deduce that of $\log_e\frac{1+x}{1-x}$ in powers of x.

6. Discuss the ambiguous case of the solution of triangles.

Prove by trigonometry Ptolemy's theorem relating to quadrilaterals inscribed in circles.

7. Find an expression for the area which a given straight line cuts off from a circle of given radius.

8. State and prove the extension to equations of a higher degree of the theorem given in question 3.

The equation $x^3+6x^2-3x+2=0$ has one root equal to -2, solve it completely.

Appendix E.

Scholarship Examinations.

9. Explain how, in geometry, an equation between two co-ordinates represents a line, and find the equation of the straight line joining two given points.

10. If p, q, r be the perpendiculars on two straight lines inclined at an angle A and on the bisector of the angle between them respectively, prove that $r = \dfrac{p \backsim q}{2 \cos \frac{A}{2}}$.

11. What is represented by each of the equations—

$$(1)\ x^2 - y^2 = 0, \quad (2)\ x^2 + y^2 - x - y = 0, \quad (3)\ x^2 - y = 0\ ?$$

12. The product of the perpendiculars from the foci of an ellipse on the tangent at any point is b^2, and the feet of the perpendiculars always lie on the auxiliary circle.

13. If two straight lines be both perpendicular to the same plane they must be parallel.

N.B.—Candidates for the Engineering Scholarships substituted for 9, 10, 11, 12 *of the above paper the following:—*

9.* Prove that the angle between two planes may be represented by the arc intercepted on the great circle which cuts them both at right angles.

10.* Four small circles can be drawn touching the sides of a spherical triangle, and the great circles joining their centres pass through the angles of the triangle and are at right angles.

11.* Express the cosine of the side of a spherical triangle in terms of the angles. If p, q, r be arcs of great circles perpendicular to two arcs inclined at an angle A and the arc bisecting the angle, show that $\tan r = \dfrac{\tan p \backsim \tan q}{2 \cos \frac{A}{2}}$.

SENIOR SCHOLARSHIPS.

I.—ANCIENT LANGUAGES, LITERATURE, AND HISTORY.

GREEK.

Examiner, Dr. RYALL.

Translate :—

HERODOTUS, B. i., c. 194.

τὸ δὲ ἁπάντων θῶυμα μέγιστόν μοί ἐστι τῶν ταύτῃ, μετά γε αὐτὴν τὴν πόλιν, ἔρχομαι φράσων. τὰ πλοῖα αὐτοῖσί ἐστι τὰ κατὰ τὸν ποταμὸν πορευόμενα ἐς τὴν Βαβυλῶνα ἐόντα κυκλοτερέα πάντα σκύτινα· ἐπεὰν γὰρ ἐν τοῖσι Ἀρμενίοισι τοῖσι κατύπερθε Ἀσσυρίων οἰκημένοισι νομέας ἰτέης ταμόμενοι ποιήσωνται, περιτείνουσι τούτοισι διφθέρας στεγαστρίδας ἔξωθεν ἐδάφεος τρόπον, οὔτε πρύμνην ἀποκρίνοντες οὔτε πρῴρην συνάγοντες, ἀλλ' ἀσπίδος τρόπον κυκλοτερέα ποιήσαντες καὶ καλάμης πλήσαντες πᾶν τὸ πλοῖον τοῦτο ἀπιεῖσι κατὰ τὸν ποταμὸν φέρεσθαι, φορτίων πλήσαντες· μάλιστα δὲ βίκους φοινικηΐου κατάγουσι οἴνου πλέους. ἰθύνεται δὲ ὑπό τε δύο πλήκτρων καὶ δύο ἀνδρῶν ὀρθῶν ἑστεώτων, καὶ ὁ μὲν ἔσω ἕλκει τὸ πλῆκτρον, ὁ δὲ ἔξω ὠθέει.

THUCYDIDES, B. vii., c. 77.

ἀνθ' ὧν ἡ μὲν ἐλπὶς ὅμως θρασεῖα τοῦ μέλλοντος, αἱ δὲ ξυμφοραὶ οὐ κατ' ἀξίαν δὴ φοβοῦσι. τάχα δ' ἂν καὶ λωφήσειαν· ἱκανὰ γὰρ τοῖς τε πολεμίοις

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Scholarship Examinations.

εὐτύχηται, καὶ εἴ τῳ θεῶν ἐπίφθονοι ἐστρατεύσαμεν, ἀποχρώντως ἤδη τετιμωρήμεθα. ἦλθον γάρ που καὶ ἄλλοι τινὲς ἤδη ἐφ' ἑτέρους, καὶ ἀνθρώπεια δράσαντες ἀνεκτὰ ἔπαθον. καὶ ἡμᾶς εἰκὸς νῦν τά τε ἀπὸ τοῦ θεοῦ ἐλπίζειν ἠπιώτερα ἕξειν (οἴκτου γὰρ ἀπ' αὐτῶν ἀξιώτεροι ἤδη ἐσμὲν ἢ φθόνου), καὶ ὁρῶντες ὑμᾶς αὐτοὺς οἷοι ὁπλῖται ἅμα καὶ ὅσοι ξυντεταγμένοι χωρεῖτε μὴ καταπέπληχθε ἄγαν, λογίζεσθε δὲ ὅτι αὐτοί τε πόλις εὐθύς ἐστε ὅποι ἂν καθέζησθε, καὶ ἄλλη οὐδεμία ὑμᾶς τῶν ἐν Σικελίᾳ οὔτ' ἂν ἐπιόντας δέξαιτο ῥᾳδίως οὔτ' ἂν ἱδρυθέντας που ἐξαναστήσειεν. τὴν δὲ πορείαν ὥστ' ἀσφαλῆ καὶ εὔτακτον εἶναι αὐτοὶ φυλάξατε, μὴ ἄλλο τι ἡγησάμενος ἕκαστος ἢ ἐν ᾧ ἂν ἀναγκασθῇ χωρίῳ μάχεσθαι, τοῦτο καὶ πατρίδα καὶ τεῖχος κρατήσας ἕξειν.

PLATO—*Menon.*

οὐδὲν μέλει ἔμοιγε. τούτῳ μέν, ὦ Μένων, καὶ αὖθις διαλεξόμεθα· εἰ δὲ νῦν ἡμεῖς ἐν παντὶ τῷ λόγῳ τούτῳ καλῶς ἐζητήσαμέν τε καὶ ἐλέγομεν, ἀρετὴ ἂν εἴη οὔτε φύσει οὔτε διδακτόν, ἀλλὰ θείᾳ μοίρᾳ παραγιγνομένη ἄνευ νοῦ, οἷς ἂν παραγίγνηται, εἰ μή τις εἴη τοιοῦτος τῶν πολιτικῶν ἀνδρῶν, οἷος καὶ ἄλλον ποιῆσαι πολιτικόν. εἰ δὲ εἴη, σχεδὸν ἄν τι οὗτος λέγοιτο τοιοῦτος ἐν τοῖς ζῶσιν, οἷον ἔφη Ὅμηρος ἐν τοῖς τεθνεῶσι τὸν Τειρεσίαν εἶναι, λέγων περὶ αὐτοῦ, ὅτι οἶος πέπνυται τῶν ἐν Ἅιδου, αἱ δὲ σκιαὶ ἀΐσσουσι. ταὐτὸν ἂν καὶ εὐθὺς τοιοῦτος, ὥσπερ παρὰ σκιὰς ἀληθὲς ἂν πρᾶγμα εἴη πρὸς ἀρετήν.

HOMER—*Odyssey*, B. v., vv. 269–275.

γηθόσυνος δ' οὔρῳ πέτασ' ἱστία δῖος Ὀδυσσεύς.
αὐτὰρ ὁ πηδαλίῳ ἰθύνετο τεχνηέντως
ἥμενος· οὐδέ οἱ ὕπνος ἐπὶ βλεφάροισιν ἔπιπτεν
Πληϊάδας τ' ἐσορῶντι καὶ ὀψὲ δύοντα Βοώτην
Ἄρκτον θ', ἣν καὶ ἅμαξαν ἐπίκλησιν καλέουσιν,
ἥ τ' αὐτοῦ στρέφεται καί τ' Ὠρίωνα δοκεύει,
οἴη δ' ἄμμορός ἐστι λοετρῶν Ὠκεανοῖο.

ÆSCHYLUS—*Choëphoroi*, vv. 719–729.

εἶεν, φίλιαι δμωΐδες οἴκων,
ποτε δὴ στομάτων
δείξομεν ἰσχὺν ἐπ' Ὀρέστῃ;
ὦ πότνια χθὼν καὶ πότνι' ἀκτὴ
χώματος, ἣ νῦν ἐπὶ ναυάρχῳ
σώματι κεῖσαι τῷ βασιλείῳ,
νῦν ἐπάκουσον, νῦν ἐπάρηξον·
νῦν γὰρ ἀκμάζει Πειθὼ δολίαν
ξυγκαταβῆναι, χθόνιον δ' Ἑρμῆν
καὶ τὸν νύχιον τοῖσδ' ἐφοδεῦσαι
ξιφοδηλήτοισιν ἀγῶσιν.

ÆSCHYLUS—*Persæ*, vv. 755–763.

τοιγάρ σφιν ἔργον ἐστὶν ἐξειργασμένον
μέγιστον, ἀείμνηστον οἷον οὐδέπω
τόδ' ἄστυ Σούσων ἐξεκείνωσεν πεσόν,

ἐξ οὗτε τιμὴν Ζεὺς ἄναξ τήνδ' ὤπασεν,
ἕν' ἄνδρ' ἁπάσης 'Ασίδος μηλοτρόφου
ταγεῖν, ἔχοντα σκῆπτρον εὐθυντήριον.
Μῆδος γὰρ ἦν ὁ πρῶτος ἡγεμὼν στρατοῦ·
ἄλλος δ' ἐκείνου παῖς τόδ' ἔργον ἤνυσε·
φρένες γὰρ αὐτοῦ θυμὸν ᾠακοστρόφουν.

Sophocles—*Trachiniæ*, vv. 974–982.

ΠΡΕΣΒΥΣ. *σίγα, τέκνον, μὴ κινήσῃς*
ἀγρίαν ὀδύνην πατρὸς ὠμόφρονος·
ζῇ γὰρ προπετής. ἀλλ' ἴσχε δακὼν
στόμα σόν. ΥΛΛΟΣ. *πῶς φῄς, γέρον; ἦ ζῇ;*
ΠΡ. *οὐ μὴ 'ξεγερεῖς τὸν ὕπνῳ κάτοχον*
κἀκκινήσεις κἀναστήσεις
φοιτάδα δεινὴν
νόσον, ὦ τέκνον. ΥΛ. *ἀλλ' ἐπί μοι μελέῳ*
βάρος ἄπλετον ἐμμέμονεν φρήν.

Translate into Greek:—

This method of asking, which is usually called the Socratic method in limited sense of the word, is in its character often similar to irony, but is different in its object and effect. It differs from our catechetical method inasmuch as it was confined almost exclusively to adult persons, in whom a tolerable share of knowledge might be supposed to exist, so that they not only answered, but also asked, and thus carried on a lively conversation. But what formed its characteristic feature, was its aiming at leading men to knowledge by reflecting upon themselves, and not upon external objects. This line of demarcation must not be overlooked, and it would be rashness to introduce the Socratic method into our elementary schools.

Give a brief sketch of the principal events in the history of Greece, between the battle of Salamis and the supremacy of Macedon; supplying dates.

Translate into Greek verse:—

Summer is gone on swallows' wings,
And Earth has buried all her flowers;
No more the lark, the linnet sings,
But Silence sits in faded bowers.

There is a shadow on the plain
Of Winter ere he comes again,—
There is in woods a solemn sound
Of hollow warnings whisper'd round.

LATIN.

Examiner, Professor Lewis.

Subject for a Latin Essay:

Nullum numen habes, si sit prudentia; nos te,
Nos facimus, Fortuna, deam caeloque locamus.

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Translate into Latin verse :—

Thus having reached a bridge, that overarched
The hasty rivulet where it lay becalmed
In a deep pool, by happy chance we saw
A two-fold image ; on a grassy bank
A snow-white ram, and in the crystal flood
Another and the same ! Most beautiful,
On the green turf, with his imperial front,
Shaggy and bold, and wreathed horns superb
The breathing creature stood ; as beautiful,
Beneath him, shewed his shadowy counterpart.

II.—MODERN LANGUAGES, LITERATURE, AND HISTORY.

THE ENGLISH LANGUAGE AND ENGLISH LITERATURE.

Examiner, Professor ARMSTRONG.

1. Give an account of the three dialects of English which appear after the Norman Conquest.

In which of these dialects did Chaucer write ?

What is Chaucer's claim to be called "well of *English undefiled ?*"

2. Quote as accurately as you can Chaucer's descriptions of the Yeman and the Marchaunt.

3. Give an outline of the Frankeleyn's Tale.

4. Compare Chaucer's humour with Shakespeare's humour, and the qualities of his imagination with those of Spenser's imagination.

5. Sketch the history of English allegorical poetry.

6. Explain the allegory of the Second Booke of the *Faëry Queene.*

7. Point out the differences of form in which the influence of the Italian mind exhibits itself in the works of Chaucer, Spenser, and Shakespeare ; and endeavour to explain how far these differences may be referable to the differences of the characters of the poets, and how far to the spirit of the periods in which they lived.

8. Comment upon the following passages :—

(*a.*) "*Hamlet.* How say you, then ; would heart of man once think it ?
But you'll be secret ?
Horatio.
Marcellus. } Ay, by heaven, my lord.
Hamlet. There's ne'er a villain dwelling in all Denmark
But he's an arrant knave.
Horatio. There needs no ghost, my lord, come from the grave
To tell us this.
Hamlet. Why, right ; you are i' the right ;
And so, without more circumstance at all,
I hold it fit that we shake hands and part."

(*b.*) "*Hamlet.* Here, as before, never, so help you mercy !
How strange or odd so'er I bear myself,
As I perchance hereafter shall think meet
To put an antic disposition on,
That you, at such times seeing me, never shall,
With arms encumbered thus, or this head-shake,
Or by pronouncing of some doubtful phrase,
As 'well, well, we know,' or 'We could, an if we would,'

Or 'If we list to speak,' or 'There be, an if they might,'
Or such ambiguous giving out, to note
That you know aught of me; this not to do,
So grace and mercy at your most need help you,
Swear."

9. Analyse the mental condition of Hamlet in Act II., sc. 2, and in Act III., sc. 1, of the play.

10. What are the principal foibles which seem to be held up to ridicule in the *Merry Wives of Windsor?*

Name the characters in which they are exemplified, and describe the consequences to which in each case they lead.

11. Describe the decline of Satan's power as represented in *Paradise Regained*, quoting, as far as you can, any remarkable passages of the poem which illustrate its principal stages.

12. Compare the imaginative powers of Milton with those of Dante.

13. Give the substance of Johnson's comparison of Pope with Dryden.

14. Name the most remarkable of Pope's French and English contemporaries, and examine the influence of the French mind upon his style and genius.

15. Compare the didactic element of the *Essay on Man* with the didactic element of the *Excursion*.

Specify, and, if possible, quote some of the principal passages of the latter poem which illustrate the salient peculiarities of Wordsworth's mind.

⁂ *Candidates selected* TEN *of these questions.*

HISTORY.

Examiner, Professor ARMSTRONG.

1. Describe the constitution of the old Frank Monarchy.
2. Explain the custom of *personal commendation.*
3. Describe the leading features of the Anglo-Saxon Constitution.
4. Discuss the question of the origin of Trial by Jury.
5. What are the principal articles of Magna Charta?
6. Give an account of the Confirmation of the Charters, and of the circumstances under which it was obtained.
7. Describe as well as you can the state of civilization in England during the reign of Edward III.
8. Explain the circumstances which led to the deposition of Richard II.

MODERN LANGUAGES.

Examiner, Professor DE VERICOUR.

Translate into French, or German, or Italian :—

Sir Walter Scott commenced his career under very peculiar circumstances, singularly favourable for the portraiture of character at different times and under different aspects. Passing much of his childhood on the banks of the Tweed, his early fancy was kindled by the tales of the Border chivalry; educated in Edinburgh, he dreamed, in maturer years, in the grassy vale of St. Leonard's, of the knights of Ariosto and the siege of Jerusalem. But the charms of poetry, the creations of romance,

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did not detach his mind from the observation of nature. Mounted on a hardy Highland pony, he wandered over the mountains of Scotland, observing its scenery, inhaling its beauties, studying the character of its inhabitants. On the mountain's brow, by the grassy lake, he engraved the features of the land on his recollection; by the cottage fireside he stored his mind with the feelings and anecdotes of the peasantry; amidst the castle ruins he realized in fancy the days of chivalry. The poetic temperament of his mind threw over the pictures of memory the radiance of imagination, without taking away the fidelity of the recollection. Thence the general admiration with which his works were received. The romantic found in them the realization of their imaginative dreams; the antiquarian, a reminiscence of the olden times; the practical, a picture of the characters they had seen around them, and with which they had been familiar from their infancy.—SIR A. ALISON: *History of Europe.*

1. When is the substantive *œuvre* considered as of the feminine gender, and when of the masculine? What distinction do you make between *œuvre* and *ouvrage?* State the difference between *un ouvrage de l'esprit*, and *un ouvrage d'esprit.*

2. State what you know of the pulpit eloquence during the reign of Louis XIV.

3. State what you know of Malherbe.

4. Which are the fundamental differences between the theatrical school of England, as represented by Shakespeare, and that of France, as represented by Racine?

5. Mention the principal works of Goethe, and their influence on the literature of Germany and of Europe.

6. State what you know of Petrarch, of his Italian poetry, and of his influence on the classical *renaissance* of the fourteenth century.

III.—LOGIC AND METAPHYSICS.

Examiner, PROFESSOR READ.

LOGIC.

1. Give the canon of the conjoint method of agreement and difference. How far does it remedy the inherent weakness of the method of agreement?

2. What is a law of nature in its strictest sense, and in what senses are we said to explain laws of nature?

3. To what extent does the composition of causes interfere with the applicability of the experimental methods to actual phenomena?

4. Of how many propositions can you infer the truth or falsehood according to Sir William Hamilton's system, if U be supposed to be true?

5. In what sense is it true to say that all conversion is simple conversion?

6. What is the province of the major premiss according to Mill? Discuss his opinion.

METAPHYSICS.

1. Define metaphysics, and discuss the objections usually brought against the study.

2. What are the philosophical difficulties involved in the system of Berkeley?

3. Explain what is meant by ideas of "Reflection" in Locke's system.

4. What province is assigned to the idea of "Time" by Kant?

5. How far does Reid's Theory of Perception differ from that which he calls "Ideal"?

6. What phenomena does Hartley propose to explain by his "Law of Transference"? How does Sir W. Hamilton explain the same phenomena, and which account do you prefer?

7. What is Hamilton's law as to the relation between sensation and perception? By what proofs does he establish it?

8. What are the arguments for and against the continued activity of the mind during sleep?

IV.—MATHEMATICS.

Examiner, Professor NIVEN.

1. Prove that the anharmonic ratio of the four points in which the rays of a pencil are cut by any transversal is constant.

2. Sum the series $1^3+2^3+3^3+\ldots+n^3$
$1^3+3^3+5^3+\ldots$ to n terms.

3. Given the expansion of $\log_e(1+x)$, determine that of $\log_e\frac{m}{n}$. Show that it is convergent whatever value the ratio $\frac{m}{n}$ may have.

4. Write a short account of the solution of triangles.
Apply the formulæ of plane trigonometry to prove Ptolemy's theorem regarding a quadrilateral inscribed in a circle.

5. Write down as many formulæ as you know in spherical trigonometry, and deduce their conjugates, and the analogues of each in plane trigonometry.

6. Find the chord which is the chord of contact of the tangents to a parabola $y^2-4ax=0$ from a point P.
If the chord subtend a constant angle at A the vertex, find the locus of P.

7. Determine the straight lines joining the intersection of each pair, with that of the other pair of the four straight lines $lu+mv=0$, $lu-mv=0$, $mv+nv=0$, $lv-mu=0$.

8. Given $u=\phi(x,y)$ where y is a given function of x, find $\frac{d.u}{dx}$ and $\frac{d^2.u}{dx^2}$.

9. Determine these integrals $\int\frac{dx}{(x^2-a^2)^2}$, $\int\frac{d\theta}{\sin\theta\sin\overline{\theta-\alpha}}$

10. Define, and investigate the principal properties of, the conjugate diameters of an ellipsoid.

11. Give an account of some of the principal kinds of differential equations of which you know the solutions or methods of solution.

12. Solve these equations—
(1) $y=x\frac{dy}{dx}+\left(\frac{dy}{dx}\right)^2$. (2) $\frac{d^2y}{dx^2}+a^2y=x^2$. (3) $x^2\frac{dz}{dx}-y^2\frac{dz}{dy}=\frac{x+y}{xy}$.

VI.—CHEMISTRY.

Examiner, Professor MAXWELL SIMPSON.

1. State the relation that generally exists between the specific gravity of an elementary gas or vapour referred to hydrogen as unity, and its atomic weight. State also the relation that exists between the specific

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gravity of a compound gas or vapour and its molecular weight. Give the specific gravities of chlorine, oxygen, vapour of phosphorus, vapour of mercury, ammonia, and ethyl-alcohol.

[Atomic weights—Mercury, 200; Phosphorus, 31.]

2. How are chloride and fluoride of silicium prepared? Explain by equations the action of water upon each of these bodies.

3. In what proportions by volume do elementary gases combine? State the composition by volume of the following gases:—Ammonia, steam, nitric oxide, hydrochloric acid.

4. How is ferrous sulphate prepared, and how may it be transformed into ferric sulphate? Write the formulæ of these salts, and state how they may be distinguished from one another.

5. Describe and explain the ordinary processes for the preparation of the following chlorides:—Stannous chloride, cupric chloride, mercuric chloride, antimony terchloride.

6. What is meant by the term atomicity as applied to an element? Give examples of monad, dyad, triad, tetrad, pentad, and hexad elements. Show by graphic formulæ how the elements are linked together in the following compounds:—Nitric anhydride, nitrate of baryta, oil of vitriol, ether, glycol.

7. What are compound radicals, and how are they formed? Name and write the formulæ of the radicals that may be obtained from the following compounds:—Water, ammonia, ethyl hydride.

8. Write the formulæ of carbonyl and carboxyl (also called oxatyl), and state the relation that exists between the latter and oxalic acid.

9. How may acetic acid be transformed into malonic acid?

10. What acids are formed by the action of potassium hydrate upon bicyanide of ethylene and tercyanide of allyl respectively? Give equations explanatory of the reactions.

11. The compound radical allyl plays the part of a monad in one alcohol, and of a triad in another. Name these alcohols. State also the atomicity of the free molecule, and write its formula.

12. From what alcohol may acetone be obtained by the action of oxidizing agents? Write the formulæ of these bodies, and explain generally the relation that exists between ketones and aldehydes.

VII.—NATURAL SCIENCE.—PHYSICAL GEOGRAPHY AND GEOLOGY.

Examiner, Professor HARKNESS.

1. Describe an avalanche, a glacier, and an iceberg.

2. What is the mean density of the earth, and also of the rocky masses which form the earth's crust?

3. What are the arrangements of the ashes and lavas on a volcanic cone?

4. What is the origin of mineral veins, and what is the nature of the substance known as "vein stuff"?

5. What relation do the Upper and Lower Laurentian rocks bear to each other, and what minerals compose these rocks.

6. What are the most characteristic fossils of the Skiddaw slate group?

7. What is the mineral nature, what is the position, and what are the fossil contents of the Marwood Sandstone?

8. In what respects does the flora of the Permian rocks differ from that of the Carboniferous formation?

9. By what means is the genus *Ceratites* distinguished from that of *Ammonites*?

10. What is the horizon of the Solenhofen slate, and what is remarkable in its fossils?

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11. What are the several genera of *Ammonitidæ* which characterize the Cretaceous formation?

12. What is the position of the Gypseous deposits of Montmartre, and what fossils have these strata afforded?

BOTANY.

Examiner, Professor REAY GREENE.

1. Define the order Ericaceæ. Note its allies and chief divisions.
2. Describe the structure of a vascular bundle. Describe the arrangement of the bundles in the stem of a typical palm.
3. Enumerate the families and higher groups of vascular cryptogams.
4. Describe the sporangium of any moss or liverwort.
5. In which of the lower plants does 'conjugation' take place? Describe this process and its result.

ZOOLOGY.

Examiner, Professor REAY GREENE.

6. Compare the heart and great vessels of a mammal, a bird, and a crocodile.
7. Describe the structure and position of the paired appendages which constitute the 'jaws' and foot-jaws' of an ordinary stalk-eyed crustacean. To what parts of a hexapod insect do these appendages correspond in relative position?
8. What families of molluscs are wholly extinct?
9. Choose any order of cœlenterate animals: define it, and distinguish its principal families.
10. Give some account of the mode after which external budding occurs among the Foraminifera.

No. XV.

Faculty of Law.

SESSIONAL EXAMINATIONS.—SECOND YEAR.

Sessional Examinations.

EQUITY.

Examiner, Professor O'SHAUGHNESSY.

1. Under what three heads may legacies be classed? Define each, and state the chief points of difference between them.
2. In what light will equity regard a mortgagee in possession? How will his assignments of the mortgage affect his liability?
3. Explain the ground of the jurisdiction in equity to decree specific performance of agreement.
4. Why is it that equity has practically exclusive jurisdiction over matters of partnership?
5. In order to satisfy the word "agreement" in the 4th Section of the Statute of Frauds (29 Ch. 2nd), what must appear in writing?
6. What contracts in restraint of trade are void? Under what conditions may a contract in restraint of trade be upheld?
7. To what extent have the decisions carried the principle that an infant may bind himself by a contract for necessaries?

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Sessional Examinations.

8. What right is conferred as to the goods by a lien? In whom does the property in the goods remain?

9. If a trader direct by his will that his trade shall be carried on by his executor who ostensibly carries on the trade, how far will such executor's liability extend?

10. What becomes of a lapsed legacy?

CIVIL LAW.

Examiner, Professor MILLS.

1. Explain the law as to intestate succession.

2. State the several kinds of will, and the requirements necessary for the validity of each.

3. State and explain the nature of some of the chief forms of contract.

4. State the nature of the Roman "dos," and the effect of marriage on the status and properties of the parties.

5. State the nature and effects of the law as to adoption and arrogation.

6. What was the position of the freedman towards his patron in relation to the rights of succession of the latter?

7. State some of the principal enactments with reference to the position and enfranchisement of slaves.

8. State the position of the Roman *populus* and *plebs* in relation to each other; and some of the laws by which it was from time to time modified.

THIRD YEAR.

COMMON AND CRIMINAL LAW.

Examiner, Professor O'SHAUGHNESSY.

1. Into what two species are wrongs divisible? Define each.

2. How far, according to English law, does the lawfulness of self-defence extend? What would result from excess?

3. Upon proceedings to enforce an award, what is the nature of the objections which may be taken to its validity? What improvements have been made by recent enactments in the law of arbitration?

4. Of what divisions does the Court of Exchequer consist? State its functions and jurisdiction in each capacity.

5. By virtue of what authorities do judges sit upon their circuits? What power is given to them by the Commission of Nisi Prius? How did trials at Nisi Prius come to be so called?

6. What consequence (as regards the different Courts) may be deduced from the maxim that "Every wrong must have a remedy"?

7. Explain and apply the maxim that *Damnum absque injuria* is not actionable.

8. What is the meaning of saying that a plaintiff is not entitled to recover in respect of any damage that is too remote?

9. What is the meaning of the term "misdemeanour"? Define felony, and state what is its true criterion.

10. Define manslaughter. Why in it can there not be any accessories before the fact?

11. What qualification is usually attached to the value of what is known as "Queen's evidence."

12. When is a confession of guilt not admissible in evidence?

Scholarship Examinations.

SCHOLARSHIP EXAMINATIONS.—FIRST YEAR.

REAL PROPERTY.

Examiner, Professor O'SHAUGHNESSY.

1. What is the limit by which real property is prevented from being tied up in perpetuity?

2. What was the object of the Mortmain Act? When was it passed? What are its provisions as to lands or hereditaments?

3. If two or more males are in equal degree of consanguinity to the purchaser, which of them, according to the rules of descent as altered by the Act for the Amendment of the Law of Inheritance, shall inherit? How would it be in regard to two or more females?

4. What was effected by the statute 12 Charles II., cap. 24?

5. What, since the Statute of Uses, has become requisite to a feoffment?

6. What is required by the Statute of Frauds with respect to a marriage contract?

7. What is the law, since 1st of October, 1845, with respect to the conveyance of freehold lands?

8. What are the present provisions for the conveyance by married women of their interests in real estate? What Act regulated the law on this subject?

9. In what has a remainder its origin? How does a reversion arise?

10. Explain the meaning of "merger."

11. What are the three kinds of purely incorporeal hereditaments, and how may each of them respectively be conveyed?

12. Explain why the acceptance by a tenant of a new lease from his landlord operates as a surrender in law of his old lease?

THIRD YEAR.

SMITH'S LEADING CASES.

Examiner, Professor O'SHAUGHNESSY.

1. How was the maxim *Actus curiæ nemini facit injuriam* acted upon in one of the points decided in *Cumber* v. *Wane*? State the reason of the rule, and the extent to which the practice prevails.

2. How far is the admissibility of evidence of custom to explain the meaning of a word used in any contract, qualified by a meaning given in an Act of Parliament?

3. What is a highway? In what does the interest of the public in it consist?

.4 What is necessary before a Sheriff shall break the outer door of a stranger's house, in those cases in which he has a right to do so? In what case was the law laid down? What is the leading principle declared in the case referred to?

5. What was the policy in which the law as to allowing a set off between moneys due to and from a bankrupt's estate, originated?

EQUITY JURISPRUDENCE (STORY).

Examiner, Professor O'SHAUGHNESSY.

1. Illustrate the difference between the remedies in the Courts of Equity and in those of Common Law, by the cases of a contract broken, and of the issuing of an injunction.

Appendix E. Scholarship Examinations.

2. What is the general ground on which the contracts and other acts of idiots, lunatics, and other persons, *non compotes mentis*, are generally deemed to be invalid in Courts of Equity?

3. How does a mortgage of personal property differ from a pledge?

4. What is the general doctrine as to the jurisdiction of Courts of Equity in matters of account, growing out of privity of contract? On the other hand, when will Equity decline taking jurisdiction of the cause?

5. What is *Election* in the sense in which the doctrine of Election and Satisfaction is acted upon, and enforced in Courts of Equity?

SENIOR SCHOLARSHIPS.

LAW OF VENDORS AND PURCHASERS (LORD ST. LEONARDS).

Examiner, Professor O'SHAUGHNESSY.

1. What is the general rule as to the right of the purchaser where there has been a misrepresentation (though innocently), as to the quantity of the estate? How would it be, in case either of excess or deficiency, where the lands in a conveyance are said to contain so many acres "more or less"?

2. If a person agree to give an annuity for the life of the vendor as the consideration for the estate, and the vendor die before the execution of the conveyance, can the purchaser obtain the benefit of his contract? and if so, how? In such a case, if a payment of the annuity became due before the death of the vendor, and the purchaser neglected to make payment or tender it, what would be the consequences?

3. Why would an agreement by parol for a lease not exceeding three years, whereupon the reserved rent should amount to two-thirds of the full improved value (the class of leases excepted in the 2nd sec. of the Statute of Frauds), be void?

LAW OF LANDLORD AND TENANT (FURLONG).

Examiner, Professor O'SHAUGHNESSY.

4. Upon a lease to hold for seven, fourteen, or twenty-one years, who has the option of determining the interest? How may it be done? State the grounds for the answer.

5. Why, in calculating renewal fines under leases for lives renewable for ever, is no proportion of the septennial fine allowed for any period less than seven years?

6. For what is Replevin the appropriate remedy? Why may growing crops distrained under the Irish Statute, 56 Geo. III., c. 88, be replevied?

THE LAW OF EVIDENCE (TAYLOR).

Examiner, Professor O'SHAUGHNESSY.

7. What is the true principle of the rule, which was believed to have formerly existed, requiring two witnesses in proof of the crime of perjury?

8. What provisoes limit the rule, that any *material* alteration in a written instrument, whether made by a party or a stranger, is fatal to its validity? What are the grounds of the doctrine?

9. What does the law presume *prima facie* as to a man's *domicil*? How may the presumption be rebutted?

Scholarship Examinations.

COMMON LAW PLEADING (STEPHEN).

Examiner, Professor O'SHAUGHNESSY.

10. What is the effect of a plea in the nature of a plea *puis darrein continuance?* How does it differ from an ordinary plea in bar?

11. What does a common traverse consist of, and what, consequently, does it involve?

12. When the defendant justified an imprisonment of the Plaintiff on the grounds of a contempt committed *tam factis quam verbis*, why was the plea adjudged to be bad?

CIVIL INJURIES—CRIMES (STEPH. COMS.)

Examiner, Professor O'SHAUGHNESSY.

13. What is necessary in order that a Plaintiff may sustain an action for damages? Explain the maxim that a mere *damnum absque injuria* is not actionable.

14. What is the object of a motion by way of interpleader?

15. What constitutes the crime of Arson?

16. How may judgment in a criminal prosecution be reversed? What are the grounds for doing so? What (in such cases) is necessary before execution will be stayed?

No. XVI.

Faculty of Medicine.

Sessional and Prize Examinations.

SESSIONAL AND PRIZE EXAMINATIONS.

NATURAL PHILOSOPHY.

Examiner, Professor ENGLAND.

1. When is a ray of light totally reflected?

2. A lamp is placed at a distance from a convex lens; show how to determine the position of its image formed by the lens, and trace out the variations which the image will undergo when the lamp is moved from a distance to the lens?

3. A piece of metal weighs 96·7 grains in air and 84·3 grains when immersed in water; determine its specific gravity.

4. A musical note is produced by 512 vibrations per second; determine the length of the corresponding wave of air.

5. A thermometer being graduated as follows—the freezing point of water marked 0°, the boiling point 250°, the stem between these points being divided into portions of equal length; what temperature in Fahrenheit's scale corresponds to 80° on this?

6. What is meant by a unit of heat?

7. Assuming the specific heat of mercury to be ·033; if 5 lbs of mercury at 80 C. are brought in contact with 2 lbs. of water at 10 C., find the resulting temperature.

8. A rod with a charge of positive electricity is approached to a gold leaf electroscope which has been previously charged, the leaves first collapse, then separate; explain this, and state with what electricity the electroscope was charged in the first instance.

9. Describe Groves's battery.

10. What is meant by an astatic needle?

11. Two men carry a weight of 240 lbs. by means of a pole 12 feet long, the weight being suspended from a point 4 feet from one end; find the pressure supported by each of the men.

12. State the laws of motion, and some experiments in confirmation of their accuracy.

ANATOMY AND PHYSIOLOGY.

Examiner, Professor CORBETT.

1. Describe the general and microscopic features of cartilaginous tissue.
2. Describe the miscroscopic characters of voluntary muscular fibre.
3. Describe the microscopic characters of enamel, dentine, and crusta petrosa.
4. Describe the structural arrangements of the walls of arteries.
5. Describe the interior of the left ventricle and the left auriculo-ventricular valves.
6. State the connexions, structure, and office of the pancreas.
7. Mention the tissues composing the bronchial tubes and describe a lobule of the lung.
8. Give a brief description of gastric digestion.
9. Describe generally and minutely the structure and disposition of the mucous membrane of the small intestines from the pyloric to the ileo-cœcal valves.
10. Mention the changes in the state of the air and blood affected by respiration.

PRACTICAL ANATOMY.

Examiner, Professor CORBETT.

1. Describe the characters, distinguishing a dorsal vertebra, and mention the features peculiar to the first, tenth, eleventh and twelfth.
2. Describe the articular surfaces of the bones entering into the elbow joint and superior radio-ulnar articulation; then describe the ligaments and mention the muscles which are in immediate relation with these parts.
3. Describe the superior and inferior tibio-fibular articulations and the connecting ligaments.
4. Describe the coraco-brachialis and the brachialis anticus muscles.
5. Describe the origins, insertions, and relations of the three peronei muscles.
6. Describe the course, relations, and branches of the popliteal artery.
7. Describe the origin, course, and branches of the ulnar nerve.
8. Describe the internal and external abdominal rings; state the boundaries of the inguinal canal; also mention the relations of the internal epigastric artery.

MATERIA MEDICA.

Examiner, Professor PURCELL O'LEARY.

1. CASTOR OIL.—Name of plant furnishing; natural family; characters; physiological action; therapeutical uses; dose and administration.
2. CARBONATE OF AMMONIA.—Composition; preparation; officinal characters; impurities; tests; physiological action; therapeutical uses; dose and administration.
3. HIPPO.—Name of plant furnishing; natural family; characters; physiological action; therapeutical uses; dose and administration.
4. ETHER.—Nature of, and theory of its preparation.
5. Give the Doses of *Laudanum; Sulphate of Zinc; Morphia; Quinine; Aloes*, and *Hydrocyanic Acid.*

Additional Questions for Candidates in Honors.

6. Iodide of Potassium; its characters; tests of purity; rationale of the volumetric test.

7. Contrast the Action of Saline with that of Acrid Cathartics.

8. Compare the action of crude Opium with that of its different alcaloids; giving the characteristic action of each of these.

9. How do medicinal agents influence secretions, and according to what laws?

10. State the different theories as to the action of Iron; giving the reasons adduced for and against each view, with the rational conclusion to be thence drawn with regard to such action.

SURGERY.

Examiner, Professor TANNER.

1. Describe the succession of changes which occurs in living tissue when injured, and the actions and composition of the vaso-motor nerves.

2. Give a pathological description of phlegmonous erysipelas, and the treatment of each stage (according to Dupuytren).

3. What are the various causes of mortification, and its different forms; also the symptoms, progress, and treatment for each?

4. Detail the methods by which the healing of open incised wounds may be accomplished.

5. How does tetanus differ from hydrophobia?

6. Give in detail the several methods for treating fractures.

7. Describe the several methods for arresting the various forms of arterial hæmorrhage, and the application of each.

8. What are the symptoms of fracture of the spine with depression, in its different regions, and the probable duration of life in each?

9. Describe the ordinary lateral operation of lithotomy, its difficulties, and causes of death.

10. Describe the operation of venesection, and the cases requiring it; also Langenbeck's osteoplastic resection of the upper jaw.

PRACTICE OF PHYSIC.

Examiner, Professor O'CONNOR.

1. In what class of fevers are stimulants most required? What circumstances would indicate, and what contra-indicate, their use in a given case?

2. Answer the same question with reference to the use of opium.

3. What organs are liable to become diseased in intermittent fever, and the immediate cause of such diseases.

4. What are the causes of brain softening?

5. What effect has adherent pericardium on the nutrition of the heart, and on its functions?

6. Explain the process of natural cure in tuberculosis of lung.

7. What are the leading symptoms of peritonitis? and give an explanation of the cause of these symptoms.

8. Enumerate the various causes of hæmatemesis.

9. What is the differential diagnosis of Asiatic cholera, as compared with sporadic cholera?

10. What are the leading symptoms and diagnosis of diabetes?

Appendix E.

Sessional and Prize Examinations.

MIDWIFERY.

Examiner, Professor HARVEY.

1. Describe the cervix uteri, its relations, extent, and structure. In what points of structure, and of function, does it differ from the uterus proper?

2. In what direction is narrowing of the pelvis most frequently met with in practice, and upon what (not amounting to absolute deformity) does this narrowing commonly depend?

3. Describe the menstrual fluid, its nature, qualities, source, and mode of production. Give an outline history of the function of menstruation. What is its import?

4. Give a descriptive detail of the physiological actions which are brought into play in the processes of the dilatation of the mouth of the uterus, and the expulsion of its contents, in a natural labour. In what particulars do the two stages of labour most strikingly contrast with each other?

5. Of two women in the eighth month of pregnancy, one has considerable œdema of the lower extremities and vulva; the other has a less degree of the same, but it extends more or less over the face, upper extremities, and body generally, with headache, drowsiness, and occasional flashes of light across the eyes, &c. What do you consider the nature of each affection, and what can be done for them?

6. Describe the condition of the nipple and areola in the earlier and later stages of pregnancy. What is its value as a sign; and under what circumstances is it least to be trusted?

7. A lady, aged 31, has been in labour of her first child for the last eight hours; the pains going on steadily and regularly. The head presents; os uteri dilated only to about the size of a shilling, its circumference thin and sharp, and there has been little change in it for some hours. Does the case require interference, and how would you treat it?

8. A primipara has been four hours in the second stage of labour. The head is low down in the cavity of the pelvis, but the pains have been getting weaker, and shorter, and less effective for the last hour. What should be done; and how would you do it?

9. In an arm presentation the membranes have recently given way, and the right hand has come down into the vagina, with its palm facing backwards? What is the position of the child? What operation will you choose for the relief of the present state of things; and how will you perform it?

10. When the head of the child enters the pelvis in the third position, describe the mechanism of the labour as a case in third position usually proceeds to its completion. What is the less usual termination, and how does this latter affect the progress of the labour?

MEDICAL JURISPRUDENCE.

A. MEDICAL PART.

Examiner, Professor PURCELL O'LEARY.

1. How far does the absence of the hymen favour the supposition of rape?

2. What other physical signs would you expect to find in a case of recent rape?

3. May the appearance of gonorrhœa in young females prove fallacious; and if so, what does it arise from?

Appendix E.

Sessional and Prize Examinations.

4. What will be your mode of examination in a case of alleged rape?

5. How can you distinguish feigned from real epilepsy?

6. How is post-mortem hypostasis to be distinguished from ecchymosis, the result of violence?

7. Distinguish between the results of the application of Marsh's test to arsenic and to antimony.

8. What are the symptoms of poisoning by corrosive sublimate?

B. LEGAL PART.

Examiner, Professor O'SHAUGHNESSY.

1. What are the two states of mental disorder recognised by the law of England? What, in a legal view, is the main character of insanity?

2. What is said to be the best test for fixing responsibility on a person who has committed a crime?

3. What are the two great points to be established by medical evidence in a case of child murder?

4. If, in a case of suspected infanticide, a woman willingly consents to a medical examination, what warning should the medical man give her before instituting any inquiries relative to her case? Why should a medical man not compel a woman suspected under such circumstances to submit to a physical examination?

SCHOLARSHIP EXAMINATIONS—FIRST YEAR.

Scholarship Examinations.

MATHEMATICS.

Examiner, Professor NIVEN.

1. If a line falling on two other straight lines make the exterior angle equal to the interior and opposite angle, these two straight lines are parallel.

If a point P be taken on the diagonal AC of a parallelogram ABCD, show that the triangles PAB, PAD are equal.

2. If AB be bisected in C and produced to D, rect. AD, BD+sq. on BC=sq. on CD.

3. If two circles touch internally, the line joining their centres passes through the point of contact.

If AB be given, find P on a given line xy such that ∠ APB is a given angle.

4. From a given circle to cut off a segment containing a given ∠

5. If a line DE be drawn parallel to BC cutting AB, AC in D, E: show that AD : DB :: AE : EC.

6. What income is derived from £2,250 by investing in $3\frac{1}{2}$ per cents. when at $92\frac{1}{2}$?

7. There is a certain parallel of latitude along which the sun moves at the rate of 330 yards per second of time, what is the whole length of this parallel taken round the earth?

8. Divide $2a^3-3a^2b-18ab^2+27b^3$ by $2a-3b$, and simplify the fraction $\left(1-\frac{2ab}{a^2+b^2}\right)\div\left(\frac{a^3-b^3}{a-b}-3ab\right)$.

9. Solve the equations—

$$(1)\ \frac{x-\frac{3}{2}}{\frac{1}{3}}+\frac{2x-\frac{1}{2}}{3}=6.$$

$$(2)\ \frac{x+4}{y+2}=\frac{2}{3},\ \frac{x+1}{y+2}=\frac{3x-5}{3y-7}.$$

$$(3)\ (x+ab)^2=(a+b)^2x.$$

Appendix E.

Scholarship Examinations.

10. Define a geometric series and find its sum to n terms.
Sum the series $1+{\cdot}5+{\cdot}25+{\cdot}125+\ldots$ to infinity.

11. How many terms of the series $1\frac{1}{6}+2\frac{1}{3}+3\frac{1}{2}+\ldots=77$?

12. Given sec $A=a$, find cosec A in terms of a.

13. Determine $\tan \overline{A+B}$ in terms of tan A and tan B.
Apply the result to find tan $(45° + 30°)$ and tan $(135° - 60°)$

14. If two sides of a triangle and the included angle be given, find formulæ sufficient to determine the other parts.

In any triangle

$$\cos A+\cos B+\cos C=\frac{2(a+b+c).\sigma.(\sigma-\sqrt{a})(\sigma-\sqrt{b})(\sigma-\sqrt{c})}{abc}$$

where $2\sigma=\sqrt{a}+\sqrt{b}+\sqrt{c}$.

Natural Philosophy.—Second Year.

Examiner, Professor England.

1. Define the terms, stable, unstable, and neutral equilibrium.
2. State the laws of falling bodies, and some experiments by which they can be verified.
3. A cubical vessel is filled with water; compare the pressure on one of its vertical sides, with the weight of the water which it contains.
4. Account for the use of a sounding board in stringed musical instruments.
5. What is meant by the "Mechanical equivalent of heat."
6. The focal length of a concave reflector is 20 inches, a luminous point is placed at a distance of 5 inches from the mirror; find the focus of reflected rays.
7. Explain the principle of the electrical condenser.
8. A gold leaf condenser is charged with positive electricity, an insulated metallic ball is approached to the plate of the electroscope, and the leaves are found to collapse slightly; from this experiment can you infer anything with regard to the electrical state of the ball.

Chemistry.

Examiner, Professor Maxwell Simpson.

1. If the oxygen contained in 100 grammes of chlorate of potash be passed over an excess of red hot pulverulent copper, what quantity of black oxide of copper will be formed? (Atomic weights, potassium=39; copper=63.)
2. How would you demonstrate analytically that hydrochloric acid consists of equal volumes of chlorine and hydrogen?
3. Explain the theory of types. Write the typical formulæ of the following compounds:—ethylic alcohol, ethylic ether, glycol, ethylamine, ethylene-diamine, oil of vitriol, tribasic phosphoric acid.
4. Write the formula of a monobasic, a bibasic, and a tribasic acid, and state how many classes of salts may be obtained from each. Write the formulæ of the sodium salts of these acids.
5. Name and write the formulæ of the compounds that are respectively formed when carbon dioxide, sulphur dioxide, and ammonia are passed into water.
6. Explain the action of hot oil of vitriol upon formic and oxalic acids respectively.
7. How may subacetate of lead be prepared, and how may it be distinguished from the neutral "acetate"?
8. Give the most characteristic tests for meconic acid, uric acid, and strychnia.

Appendix E.
Scholarship Examinations.

9. How are the two chlorides of mercury prepared? Explain by symbols the action of ammonia upon each.

10. Describe the Bessemer process for the preparation of steel.

11. What is the composition of gunpowder, and what bodies are formed when it is exploded?

12. Describe the process of dialysis, and how it may be used to separate arsenious acid from organic matter.

13. What is the difference between an alcoholic and a basic hydroxyl? Name and write the formula of an acid which contains both.

14. How may chlorhydrine of glycol and chloride of ethylene be prepared from glycol? Write the formulæ of these compounds, and explain the action of potash upon the former.

15. How may nitrogen be detected in an organic compound by means of sodium, and how may its amount be determined by Dumas' method?

ANATOMY AND PHYSIOLOGY.

Examiner, Professor CORBETT.

1. State the distinguishing characters of the different classes of bones, and describe the appearance presented on viewing a transverse section of compact texture under the microscope.

2. State the chemical composition of bone.

3. Describe the general and microscopic features of areolar texture.

4. Describe the structure of an artery.

5. Describe the intercostal muscles.

6. Explain the actions of the intercostal muscles and diaphragm in the respiratory process.

7. Describe the Malpighian bodies, uriniferous tubes, and the process of renal secretion.

BOTANY.

Examiner, Professor REAY GREENE.

1. In what orders do we find didynamous stamens? Explain this term, and show how far such stamens occur universally or otherwise throughout each order named.

2. Define the terms—'hilum,' 'chalaza,' 'plumule,' and 'tigellum.'

3. What orders yield the following drugs:—Colocynth, henbane, rhubarb, ginger and colchicum?

4. Compare the geographical distribution of barley, maize, rice and wheat.

5. Describe the structure and development of the sexual organs in ferns.

ZOOLOGY.

Examiner, Professor REAY GREENE.

6. Name, without comment, the orders and sub-classes of mammals. Add a brief definition of any single order you select.

7. Compare the gills of Chimæra with those of other fishes.

8. What is meant by the phrases—'grade of development' and 'type' (or plan of structure)?

9. Indicate those groups of molluscs which have (1) terrestrial and (2) fresh-water representatives.

10. Describe the development of a free sexual zoöid (medusoid) from its hydroid zoophyte.

Appendix E.

Scholarship Examinations.

THIRD YEAR.

Anatomy and Physiology.

Examiner, Professor Corbett.

1. Describe the microscopic features of voluntary muscular texture.
2. Describe the microscopic characters of the gastric glands or follicles.
3. Describe the mucous membrane of the small intestines from the pylorus to the ileo-cœcal valves.
4. Describe the miscroscopic characters of dentine enamel and crusta petrosa.
5. Describe the connexions, structure, and function of the pancreas.
6. State the constituent parts of the blood and describe the colourless and red corpuscles.

Oral examination.

Practical Anatomy.

Examiner, Professor Corbett.

1. Describe the capsular ligament of the hip joint, and mention the relations of muscles to it.
2. Describe the ligaments which connect the clavicle with the sternum, first rib and scapula.
3. State the connexions of the thyroid body, and describe the thyroid arteries.
4. Describe the origins, relations, and insertions of the three peronei muscles.
5. Describe the course, relations, and branches of the axillary artery.

Oral examination.

Description of specimens.

Materia Medica.

Examiner, Professor O'Leary.

1. Give the Latin name, natural family, physical characters, chemical constituents, active principle, physiological action, therapeutical uses, preparations and their doses of Aconite.
2. Same particulars of Hippo.
3. Same particulars of Croton Oil.
4. Same particulars of Bark.
5. Give the origin, mode of preparation, physical and chemical characters, adulterations and modes of detecting, tests of purity, with explanations of reaction, action, uses, preparations, doses and modes of administration, with incompatibles of Bismuth.
6. Same particulars of Antimony.
7. Same particulars of Mercury.
8. Same particulars of Iron.

FOURTH YEAR.

Anatomy and Physiology.

Examiner, Professor Corbett.

1. Describe the superficial surface and the internal structure of the medulla oblongata.
2. Describe the fourth ventricle of the brain.
3. Describe the structure of lymphatic glands and vessels.
4. State the constituents of the urine, the composition of urea and uric acid.
5. State the experiments of Hering and Blake, which have reference to the rapidity of the circulation.

6. Mention the origin and cerebral connexions of the optic nerves; also describe minutely the optic commissure and retina.

Scholarship Examinations.

Oral examination.

Practical Anatomy.

Examiner, Professor Corbett.

1. Describe the iliac, pelvic and obturator fasciæ.
2. Describe the ligaments, relations and connexions of the urinary bladder in the male subject.
3. Describe the relations and structure of the prostate gland.
4. Describe the articular surfaces of the bones, the ligaments and interarticular cartilages of the knee joint.
5. Describe the origin, course and relations of the internal maxillary artery; enumerate the branches.

Oral examination.

Description of specimens, &c.

Therapeutics.

Examiner, Professor O'Leary.

1. What influences do remedial agents exercise on the constitution of the blood?
2. Contrast the action and uses of diaphoretics with that of diuretics.
3. What substances are eliminated through the urine?
4. What influence can we exercise on the liver by remedial agents?
5. Contrast the action of crude opium with that of its several alkaloids.
6. Give the relative value of quinine and arsenic in the treatment of ague.
7. Give an outline of the therapeutical uses of tonics in general, and of the different classes of tonics in particular.

Pathology.

Examiner, Professor O'Connor.

1. How does softening of the brain take place? State its different forms, and the consequences resulting from them.
2. What is the condition of the surrounding lung in a case of aborted tubercle?
3. What parts of the body are most frequently the seat of cancer? and state the preference of different kinds for certain localities.
4. Explain the reason of the greater preference of hepatic disease in tropical climates and the forms most prevalent in hot and cold climates.
5. Enumerate the causes of general anasarca, and the reason of its more frequent appearance in the lower extremities.
6. State the different causes which may produce intestinal obstruction.
7. Specify the ultimate results of pleuritis, both local and general.
8. Distinguish between the pathological results in typhus, typhoid, and intermittent fever.

Surgery.

Examiner, Professor Tanner.

1. Describe the properties of the different anæsthetics, the contraindications to their use, the methods of administration, their effects, the treatment for an overdose, and how death may be caused.
2. What are the constituents of the human blood, the changes it undergoes during the inflammatory process, and also of its vessels?
3. Detail the different methods and means used for the suppression of arterial hæmorrhage, and also for the cure of aneurism.

Appendix E. Scholarship Examinations.

4. How are fractures of the pelvic end of the thigh bone caused, the symptoms by which the several kinds may be distinguished from one another; their pathology and treatment?

5. Describe the symptoms which indicate the different varieties of cancer of the breast, giving the cases suitable and unsuitable for operation, and also how the benign tumours may be distinguished from them, and from one another.

6. In what cases is amputation of the thigh required? Describe the several methods of operation, especially the bloodless one, as performed by Professor Esmarck.

7. Describe Mr. Streatfield's operation for the extraction of hard cataract.

8. Give the symptoms by which lymphangitis may be distinguished from phlebitis, with the pathology of each.

9. Describe the symptoms of stone in the bladder, the different kinds of calculi found in it, and all the cutting operations used for their removal.

10. Relate the symptoms caused by the dracunculus, and the means used for its removal.

MIDWIFERY.

Examiner, Professor HARVEY.

1. What is the "Round Ligament?" Describe its course, attachments, structure, function, and uses. What is its analogue in the male?

2. Of two females, one has suffered disorganization of the ovaries, the consequence of disease before puberty; in the other the uterus is congenitally absent. What would be the constitutional results in each of these cases?

3. In an abortion about the fourth month, the umbilical cord has broken, and the fœtus has come away, leaving placenta and membranes in the uterus. How would you manage the case? What dangers are to be apprehended; and what is the probable termination?

4. A lady between seven and eight months pregnant is suddenly seized with uterine hemorrhage, without pain, and apparently without cause, and is considerably debilitated by the attack. The placental souffle is heard in the right inguinal region. What is the danger here? Detail minutely what steps you would take to guard against further untoward results.

5. Enumerate the principal conditions in the parturient woman, in which the exhibition of ergot would be particularly indicated; and those in which it would not be desirable. Have we other means, and what, by which we can dispense with its use in certain cases, with, on the whole, less risk to mother and child?

6. Give the symptoms, diagnosis, and treatment of inversion of the uterus, acute and chronic.

No. XVII.

Sessional Examinations.

School of Engineering.

SESSIONAL EXAMINATIONS.

GEOLOGY AND MINERALOGY.

Examiner, Professor HARKNESS.

1. What is the mean density of the earth, and what is the average density of the rocks which form its crust?

2. What are the several solid products evolved by volcanos?

3. What are the four classes of rocks which compose the earth's crust and describe their characters.

4. What are Trappean rocks, and what is their composition?

5. What series of rocks in Great Britain make up the Cambrian formation, and mention the areas where these rocks occur.

6. Through what groups of rocks do Trilobites range, and mention some species which characterize distinct geological horizons.

7. What is the nature of the evidence which justifies the inference that coal seams have resulted from vegetable matter?

8. Where, in Ireland, and under what circumstances, do Triassic rocks occur?

9. What is the position of the Purbeck beds, what important fossils do they afford, and under what circumstances have they originated?

10. What strata make up the Miocenes of Switzerland? and name some of the fossils which occur therein.

11. What is the age of the strata known as the high level gravels, and what important circumstances are sometimes found in connexion with them?

12. From what mineral is the Antimony of commerce usually obtained, and what is the composition of this mineral?

13. To what system of crystals does Staurolite belong, and to what minerals is it nearly allied?

14. To what family of minerals does Mesotype appertain, and under what circumstances is it commonly found?

GEOMETRICAL DRAWING.

Examiner, Professor JACK.

1. Construct a fourth proportional to three given lines.

2. Given a straight line and a circle, connect them by a circle touching the straight line at a given point.

3. Draw a tangent to an ellipse from a point outside it.

4. Parallel planes cut lines in segments that are proportional to each other.

5. Given the projections of two points, construct the length of the line joining them and the angle which the line makes with the horizontal plane.

6. Explain the method of finding the projections of the curves of intersection of a vertical circular cylinder with another of smaller radius whose axis is parallel to the ground line and intersects the axis of the first.

7. A pyramid has an equilateral triangle of two inches side for its base, and a height of three and a half inches; it rests on one of its base angles; the plane of its base makes ten degrees with the horizontal plane; one of the edges of its base makes fifteen degrees with the trace of the base; draw its plan.

8. The horizontal traces of two planes meet at an angle of forty degrees, one plane rises at a slope of one to three, the other at a slope of one to four, find the angle between the planes.

9. The vertical plane through a line makes an angle of fifty degrees with the plane of the picture, and in that plane a line makes twenty-five degrees with the horizontal, assuming a distance of picture that will suit your paper, say five inches, find the vanishing point of the line.

10. What more is necessary to be known about the line before you can find its measuring point and line? Assuming this, find the measuring point and line for the original given in last question.

Appendix E.

Sessional Examinations.

NATURAL PHILOSOPHY.*

Examiner, Professor ENGLAND.

1. Prove that if any point be taken on the resultant of two forces, their moments with regard to it are equal and opposite.

2. Weights of 4, 5, 6 and 8 lbs. are placed at equal intervals along a bar whose weight is 3 lbs.; find the point about which it will balance, its length being 20 inches.

3. Find the least force which will move 80 lbs. up an inclined plane whose height is 30 and length 50 feet—

1st. When the plane is smooth,

2nd. When it is rough, the co-efficient of friction being ·5.

4. How long must a force of 10 lbs. act on a body weighing 100 lbs. to impress on it a velocity of 20 feet per second?

5. Prove that the velocity acquired in falling down an inclined plane equals the velocity acquired in falling through its vertical height.

6. A heavy body moves in a vertical circle whose radius is 10 feet; find its velocity when the centrifugal force is equal to its weight.

7. A body, whose specific gravity is 5·6, weighs 100 grains in air, what is its weight in water?

8. If a cubic inch of mercury weighs $\frac{1}{2}$ lb., and a cubic inch of air ·31 grains, what height should a barometer be taken to in order to produce a fall of one inch of mercury in the tube?

9. The focal length of a convex reflector being 20 inches, find the position of the image of a bright point at a distance of 5 feet from the reflector.

10. How is it proved that the earth does not subtend a sensible angle at any of the fixed stars?

11. How is it known that the sun is a sphere?

12. By what observations is it known that the moon is not always at the same distance from the earth? How would you compare its relative distances at different times?

PRIZE QUESTIONS.

1. Three smooth tacks ABC, are driven into a vertical wall, and a string passed over them having a weight W at each end; find the pressure on each of them when the tacks form a right-angled triangle, having the sides AB, BC, equally inclined to the horizontal line through B.

2. A uniform board is composed of a square, and an equilateral triangle described on one of its sides; find the distance of its centre of gravity from the vertex of the triangle.

3. A heavy beam turns on a hinge at its lower extremity, and rests with its upper end against a smooth vertical wall; find the pressure on the wall and the hinge.

4. From the ends of a vertical line h, two bodies are projected at the same instant, one downwards with a velocity a, the other upward with a velocity c, at what distance from the upper end will they meet?

5. A clock gains 20 seconds per day, by what amount of the length must its pendulum be altered to make it keep correct time?

6. A body is projected at an angle of 60° with the horizon, with a velocity of 500 feet per second; find its position at the end of five seconds.

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* This paper was also used for the Sessional Examination in Arts of the Second Year.

MIXED MATHEMATICS.*

Examiner, Professor ENGLAND.

1 Prove that any number of couples in the same plane are equivalent to a single couple whose moment equals the sum of their several moments.

2. A polygon, one of whose sides is AB, is suspended first from the angle A, and then from the angle B, and it is found that the angles which AB makes with the horizon in the two cases are α and β; Prove that the distance of the centre of gravity of the polygon from

$$AB=\frac{AB}{\tan\alpha-\tan\beta}.$$

3. A sphere, whose radius is r and weight W, rests upon two upright posts of equal height; required the horizontal thrust upon each of the posts when the distance between them is $2a$.

4. The lower end of a weightless beam moves about a fixed pivot, at the other end a weight W, is attached, and the beam is supported in a given position by a cord attached to its middle point at right angles to the beam; prove that if α be the inclination of the beam to the horizon, the tension is equal to $2\,W\cos\alpha$.

5. A weight of 8 ozs. hanging vertically draws a weight of 12 ozs. along a smooth horizontal table, at the end of two seconds the string is cut; find the distance passed over by the 8 ozs. in the next three seconds.

6. In the same case, if the table were rough, the co-efficient of friction $=\frac{1}{2}$; find the motion of the 12 ozs. weight after the string is cut.

7. Find the line of quickest descent to a circle from a given line without it, the line and the circle being in the same vertical plane.

8. The greatest elevation of a projectile is c, and its horizontal range h; find the angle of projection.

9. In a spherical reflector find *the longitudinal aberration* of the extreme ray.

10. Prove that atmospheric refraction is nearly proportional to the tangent of zenith distance.

11. How is the moon's distance from the earth ascertained?

12. Given the sun's declination; find the time of sunrise in a given latitude.

PRIZE QUESTIONS.

1. State the principle of *virtual velocities*, and apply it to solve the following:—

Two weights P and T, are attached to the ends of a string which hangs in contact upon a parabola of which the axis is vertical; find the condition of equilibrium.

2. Investigate the attraction of a uniform straight line on an external particle.

3. In a flexible string prove that the density at any point is given by

the formula $m=\frac{h}{g}\cdot\frac{\frac{d^2y}{dx^2}}{\frac{ds}{dk}}$.

4. Explain what is meant by the hodograph of a particle's motion. Find it in the case of a projectile.

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* This paper was also used for the Sessional Examination in Arts of the Third Year.

Appendix E.

Sessional Examinations.

5. Prove the following equation for a particle acted on by a central force:—

$$F = -\frac{h^2}{2} \frac{d\left(\frac{1}{p^2}\right)}{dr}.$$

6. A particle describes the arc of a cycloid under the action of a force parallel to the base; find the law of force.

CIVIL ENGINEERING.

Examiner, Professor JACK.

1. With what object are bricks made "perforated"? How are perforated bricks made?

2. What are the different methods in which it has been proposed to employ machinery in quarrying and tunnelling? To what extent have any of these methods been successfully employed on a large scale?

3. What is meant by the working and proof loads for structures in iron? What is the limit usually set down for the proof load, and the reasons given for this limit? What other view has been put forward with regard to the proof load?

4. In a Warren girder supported at both ends and loaded uniformly how do the increments in the stresses in the flanges in passing from one bay to another vary?

5. Which element of a Warren girder ceases to be economical as the span increases? Explain this, and also how the difficulty is met in the lattice girder?

6. How would you find the stress in the part marked (*a*) of the diagram of roof truss shown, for each cwt. of load distributed over the roof?

7. What discrepancy exists between the results of direct experiment on the resistance of cast iron to fracture under tensile and compressive forces, and the results deducible from experiments on the fracture of iron bars or beams by transverse forces? What explanations have been given?

8. According to the ordinary theory of the bending of beams what should be the relation between the amount of bending of a bar one inch thick and two and a half inches deep when loaded, first when placed on its edge, and secondly when placed on its side?

9. The two following formulæ have been given for the strength of pillars, explain them, and give what information you can as to their origin—

$$f = \frac{a}{1 + br^2} \qquad f = \frac{a}{1 + 4br^2}$$

10. In using as an approximate value for the discharge of water from a large rectangular orifice, $D = Cd\,A\sqrt{2gh}$, h being head over middle of orifice, how does Mr. Neville estimate the correctness of the approximation?

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1. Describe the manner in which small iron-bearing piles are used in foundations.

2. When piles have to be driven against considerable resistance, why is a heavy ram falling a great height more economical than a lighter

Appendix E. Sessional Examinations.

one, or falling a less height, although the latter gives a greater number of blows in the minute?

3. Explain the causes of slips in railway cuttings; also the means to be adopted for their prevention.

4. How should iron and steel rails be tested?

5. Give the form of cross section that you would adopt in (*a*) a straight cast-iron girder for a bridge; and (*b*) the circular part of a large cast-iron arch; and explain the reason for the difference of form.

6. To what extent of span are boiler-plate girder bridges ordinarily used economically for railway bridges? Under what circumstances would it be advisable to substitute another design even within this span? Describe the ordinary form of B.P. girder used for such bridges, giving as much detail as you can.

7. What are the ordinary proportions of span to rise in elliptic bridges adopted by English engineers; also thickness of pier to span? Give some account of the variety of practice with regard to the variation in the thickness of the arch-stone in proceeding from crown to springing.

8. Sketch the form of centre you would adopt for an elliptic arch of sixty feet span, preserving a passage for boats in the middle.

9. Describe the arrangements and connexions of the fire-box and fire-box shell in a locomotive.

10. What is meant by the gravitation system of water supply? What modern change in the method of transporting the water has rendered this system more easily adopted than it used to be?

Surveying, Levelling, and Mensuration.

Examiner, Professor Jack.

1. In a chain survey what is meant by a well-conditioned triangle? Why should such triangles only be used?

2. Having fixed the per-centage limit of error that should not be exceeded in good chaining, how would you settle the per-centage limit of error in the check-line of a well-conditioned triangle.

3. How should the total area of a chain survey be obtained, and how may the areas of the separate enclosures be ascertained.

4. What is parallax in a level, what causes it, and how is it to be removed?

5. So far as you can tell, is the line of collimation in a level a fixed or a movable line? If movable what is the nature of its motion?

6. You wish to measure the height of a window in a large building with an unobstructed floor; the top of the window you think is about 30 feet from the ground, and you have a two-foot rule, and a rod about 14 feet long, how will you measure the height approximately?

7. How would you ascertain the index error in a sextant?

8. Calculate the number in M'Neill's second set of tables for slopes $2\frac{1}{2}$ to 1, heights 18 and 22.

9. Describe the method of setting out a circular curve with the theodolite.

10. How would you find the local time from an observation of the sun's altitude? How would you observe the altitude?

11. Practical examination in use of theodolite.

Appendix E.

Scholarship Examinations.

THIRD YEAR.

Applied Natural Philosophy.

Examiner, Professor England.

1. A weight W is supported by each of two rafters of an isosceles roof, the length of each rafter is a feet, they are united by a tie whose length is b at a vertical distance c from the summit of the roof; find the strain on the tie.

2. A vertical retaining wall, whose height is h and breadth b, specific gravity s, sustains a pressure of water on one face; determine the equation of the line of resistance.

3. The diameter of a cylindrical column is d, its height h, and specific gravity s; calculate the number of units of work necessary to overturn it.

4. A tilt hammer when allowed to oscillate about its axis is observed to make thirty oscillations per minute; at what distance from its axis must be the point at which it strikes the object on the anvil in order that no impulse may be communicated to the axis.

5. Find the moment of inertia of a rectangular parallelopiped whose edges are a, b, c, with regard to an axis passing through its centre of gravity and parallel to the edge.

6. A pulley, whose radius is r and weight W, turns freely on a horizontal axis, a thread is wrapped round it, to the end of which a weight W is tied; find the angular velocity of the pulley when the weight has descended through h feet.

7. Two unequal weights, W_1 and W_{11}, are attached to the end of a cord passing over a pulley; calculate the tension on the cord when the system is in motion.

8. There are a cubic feet of water in a mine, whose depth is c fathoms when an engine of N horse-power begins to work the pump; the water continues to flow into the mine at the rate of b cubic feet per minute: if M be the modulus of the pump, prove that the mine will be clear of water in the time $\frac{a\,c}{88\,\mathrm{M\,N}-bc}$ minutes.

9. A spiral spring, if fixed at one end and compressed by a force applied at the other end, if the elastic force is proportional to the compression, and that a force of n lbs. produces a compression of x inches; find the work necessary to produce a compression of a inches.

10. The ram of a pile-driver weighs W, and has a vertical fall h; the pile weighs w, and is driven by one stroke through a small vertical space S; find the mean resistance of the pile, assuming that the pile and ram are inelastic.

SCHOLARSHIP EXAMINATIONS.—SECOND YEAR.

Geometrical Drawing.

Examiner, Professor Jack.

1. Give and prove a method of describing by points an arc of a circle, when you are given the span and rise; when would you be likely to require the construction?

2. Give and prove the method of drawing by points an epicycloid.

3. Give and prove the methods of drawing a tangent to an ellipse at a point on the ellipse, or from a point without it.

4. Given the projection of a straight line and a sphere, find the projection of their intersections.

5. Given the angle which a plane makes with the horizontal plane,

Appendix E.

Scholarship Examinations.

the traces of the plane, the angle which one side of the square in the plane makes with the traces, and the horizontal projection of the correct angles of the square, also the length of its sides, construct its projection.

6. A vertical right circular cone intersects a sphere; find the projection of curve of intersection.

7. Given the isometrical projection of a right circular cone, and the traces on isometrical plane of a plane cutting it, find isometrical projection of curve of section.

8. Find projection of shadow in a semicircular niche.

9. Find measuring point and line for a series of lines placed in a horizontal plane, and making a given angle with picture plane.

10. How is the axial length of coursing spiral in a skew bridge determined?

THIRD YEAR.

MATHEMATICS.

Examiner, Professor NIVEN.

1. Prove that arcs of circles and the corresponding sectors are as the angles subtended by the former at the centre, the radii of the circles being equal.

If two escribed circles E_1, E_2 touch AB on the same side in Q_1, Q_2, the point where Q_2C meets E_1 is at the extremity of the diameter of E_1 through Q_1, and the point where Q_1C meets E_2 is at the extremity of the diameter of E_2 through Q_2.

[The triangle to which E_1, E belong is ABC.]

2. Sum to n terms these series—

$$1^2+2^2+3^2+\text{etc.}$$
$$1^2-2^2+3^2-\text{etc.}$$

3. Find an expression for the area of a triangle in terms of its sides.

Prove by trigonometry that if P be a point on the circle circumscribing the triangle ABC then $a.\text{PA}+b.\text{PB}+c.\text{PC}=0$, that distance from P being negative which cuts a side.

4. If $\alpha+\beta+\gamma=\frac{\pi}{2}$, then $\sqrt{2}\cos\alpha\cos\beta\cos\gamma=\cos\left(\frac{\pi}{4}-\alpha\right)\cos\left(\frac{\pi}{4}-\beta\right)$
$\cos\left(\frac{\pi}{4}-\gamma\right)-\sin\left(\frac{\pi}{4}-\alpha\right)\sin\left(\frac{\pi}{4}-\beta\right)\sin\left(\frac{\pi}{4}-\gamma\right)$.

5. Give an account of the solution of spherical triangles, explaining how the cases group themselves in pairs.

6. Find the equation of the chord of contact of tangents to a circle from a given point.

Show that the line $x+y=2$ touches the circle $x^2+y^2-x+y=\frac{3}{2}$, and find the co-ordinates of the point of contact.

7. Determine the diameter of a series of parallel chords of a parabola.

8. Find the locus of intersection of tangents to a parabola at the extremities of chords of a given length.

9. Given an equation $\phi(x,y)=0$, find $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$.

Given $y^2+\log_e\cos(x+y)=0$, find $\frac{dy}{dx}$ when $x=0$, $y=0$.

10. Define the circle of curvature at any point of a curve and find its radius.

The radius of curvature of the parabola is twice the part of the normal between the curve and directrix.

Appendix E.

Scholarship Examinations.

11. If $f(a)=0$ and $\phi(a)=0$, find the limiting value of $\frac{f(x)}{\phi(x)}$ when $x=a$.

12. Show that $\int\phi(x)dx=\int\phi(x)\frac{dx}{d\theta}d\theta$.

Find $\int\frac{dx}{x\sqrt{x^2-a^2}}$, $\int\frac{dx}{(x^2-a^2)^2}$, $\int\frac{d\theta}{\sin\theta\sin\overline{\theta-a}}$.

13. Investigate completely an expression for the length of a curve between two given points, the equation of the curve being given.

GEOLOGY AND MINERALOGY.

Examiner, Professor HARKNESS.

1. What is the nature of the rocks known as Hypogene?
2. What is the nature and what is the composition of Trachyte?
3. Define the term outcrop.
4. Mention the principal Cambrian rocks of Great Britain.
5. Give the mineral characters, thickness, and fossil contents of the Bala group.
6. What are the characters, and what are the divisions of the Devonian rocks in their typical area?
7. What is the nature of, and what is the position of the Millstone grits?
8. What member of the Trias is absent from the British Isles?
9. What is the nature, and what is the position of the Maestricht limestone?
10. What are the characters of Nummulites, and what is their geological horizon?
11. To what system of crystal does albite belong, and what is its composition?
12. To what family does Strontianite belong, and what is its composition?

SURVEYING.

Examiner, Professor JACK.

1. Describe the adjustments of the sextant.
2. Describe the relative adjustments of the level and line of collimation in a transit theodolite.
3. Describe the method of finding local time by means of an observation, when the sun is not on the meridian.
4. Describe the method of using a theodolite in a traverse survey, so as to obtain immediately the bearing of each line of the survey, with respect to a line previously determined, noting an ambiguity that arises, and also a method of observing so as to get rid of this ambiguity.
5. What are the advantages usually said to belong to this method of observing? Compare these advantages with those to be obtained from the ordinary method of observing each angle, the process of repetition being employed.
6. Explain accurately what information the trigonometrical system of surveying supplies you with, and how far it replaces the ordinary system of chain surveying. Describe some cases in which it may be usefully employed by the engineer.
7. Explain the construction of MacNeill's second series of tables.
8. Give and prove Simpson's formulæ for the area between a short piece of a curve, its end ordinates, and the intercept on the axis of abscissæ.

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